The Builder.

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The Principle and the Practice of Water Rating.

SHOULD the inquiries of the Select Committee on Water Supply, for which Mr. W. H. Smith gave notice of moving on the 1st of April, be rigidly restricted to the terms of the motion in question, another opportunity of throwing light on the important question of the London water-supply is likely to be as completely missed as not a few others have already been. Let us for a moment ask, What is the real object of inquiry? Inquiry, from our point of view, will be little more than waste of time unless the object with which it is made is to secure to the inhabitants of London the best possible supply of good water at cost price, or as near thereto as is, under the actual circumstances of the case, practically feasible. Were the question one of founding a new city, the physical and chemical features of the case would be the only points necessary to ascertain. But, in the case of an ancient city that has grown up, as it were, of itself, the original physical conditions are, to a great extent, modified by the growth, and thus by the present condition, of roads and of buildings. And in addition to this complication comes in the financial problem of the best mode of dealing, with a due regard to public faith, with the rights of the existing companies.

The first thing, therefore, to be done, with any regard to common sense, is to ascertain all the facts of the case, taking none of them for granted. It is precisely in this matter of taking something for granted that all the recent plans for the water improvement of London have come to grief. First of all, it was taken for granted that by borrowing money at 3 or 3½ per cent., while the companies were paying a dividend of 7 or 8 per cent., the price of water and of gas might be reduced one-half. Then a company, got together on that assumption, took it for granted that the now existing water stock could be purchased for 26,000,000*l*. Then the Metropolitan Board of Works took it for granted that London would bear the burden of a double supply, involving paying interest on a double capital. Then the valuers of the Government took it for granted that unless some 38,000,000*l*. were paid, or agreed to be paid, at once, for the purchase of the existing undertakings, for every year that elapsed a great addition must be made to that large price. Thought, care, ability, no doubt, were brought to bear on these several schemes. But the mere citation of them shows how each, varied as they were in conception, was in its turn vitiated by the same error,—that is to say, by taking for granted something which was not proved, and which, as it turned out, was not true.

This error is again apparent in the terms of the motion above referred to. We are prepared to admit the justice of any denunciation of excessive and inequitable powers of rating. But it must be first shown that they exist, and it is essential to any good result that the committee of inquiry should not at starting impair its own authority and nullify its own work by assuming that as to which it is called into existence to inquire. And a second objection, also of considerable force, lies in the consideration that the basis of rating, which is the subject around which the present contention is going on, is only a part of the main and real problem of the price paid, and to be paid, by the metropolis for water. The question of the basis of charge is at once essentially distinct from, and intimately connected with, the question of the amount of charge, and so it has been regarded, not only in the case of the metropolitan companies, but in those numerous Acts of Parliament (which, at the close of 1880, were as many as 767), under which so many urban and rural districts throughout the country now obtain their water supply. That there is a great want of symmetry in the language of these Acts is undeniable. But it is no less true that the *ex post facto* introduction of a new rule, giving a common measure as to the basis of rating, might produce mischief and injustice of another kind. Thus, one Act of Parliament, based palpably on gross value, may fix a four per cent. rate, while another, based with equal distinctness on net value, has fixed one of five per cent. The thing to study is the amount of money which it is intended to raise. As a general rule the interest on the capital required for the construction of waterworks has been provided, not by putting a price on the goods sold by the companies,—that is to say, on the water delivered, per metric ton, or per 1,000 gallons,—but as a percentage on the rent of the house. Whether this be the best plan or not is, perhaps, not now in question; it is the plan hitherto adopted in this country. It would be intelligible that in the case of a district in which the necessary works for a due water supply were large and costly a higher rate should be imposed than in one where the outlay was comparatively small. This, however, is not so much the point which now exercises the public mind, as the fact that the mode in which the basis of charge is laid down differs very widely in different cases. One Act of Parliament has the term "rent," another "annual value," a third "rateable value," a fourth "rack rental," a fifth "full annual value," a sixth "gross rent," a seventh "gross annual value," an eighth "net rateable value," a ninth "poor-rate assessment." Not only are these terms other than identical, but they actually have very different values, differing more or less widely in different places. Thus there may be a difference of twenty or thirty per cent. between two modes of reckoning the annual value of the same house, and it is impossible to tell what the annual payment for water will be while such a question as this is left open.

Two separate methods of inquiry lie before any tribunal that proposes to investigate the subject of the water rating of the metropolis. The first is to inquire into the actual money outcome of the rates, and the proportion that this bears to the capital and expenditure of the companies, due regard being had to the conditions sanctioned by Parliament under which such capital was obtained from the public. Second and subsidiary to this, but still possessing a determinate value of its own, is the inquiry, how far the water supply of London is better or worse, dearer or cheaper, than that of other important cities and towns in different parts of the country.

This second inquiry, which ought to a very great extent to be conclusive, is attended with such unnecessary and extraordinary trouble, that it is not likely that any satisfactory answer can be returned to it until some public-spirited member of Parliament moves for a return of the accounts of the waterworks of the whole country, made out on the same principle as that which regulates the returns of the metropolitan water companies. A vast amount of information exists in the library, and, notably, in the seventy-four volumes of Proceedings, of the Institution of Civil Engineers, as to waterworks. But when it is attempted to ascertain from these sources what is the price at which a definite number of gallons of water are supplied in any given locality, the silence of all these works is so persistent that it is difficult to imagine that it is not purposed. The elaborate report on the domestic water supply of Great Britain, which was issued by the River Pollution Commissioners in 1874, and which gives information, of some sort, as to 610 out of the assumed number of 16,000 cities, towns, villages, and hamlets, is almost exclusively concerned with the chemical condition of the water, although it would have added little, if anything, to the expense of the inquiry to have collected at the same time information as to cost. Mr. De Rance's work, entitled, "The Water Supply of

England and Wales," has collected from Parliamentary reports statistics as to the mode of supply of a large number of places, but hardly anywhere adds the cost. Mr. Parry's little book, called "Water: its Composition, Collection, and Distribution," which gives some valuable information as to rating, omits to give that information as to the actual money outcome of the nominal rates which is measured by price per 1,000 gallons. "Water, and Water Supply," by Professor Ansted, is equally silent as to cost. The outcome of a careful investigation of all these sources of information, although yielding some results of value, to which we hope hereafter to allude, is so far from being exhaustive, that we are strongly inclined to think that no investigation of a Parliamentary character will have much definite value until a general return of the condition and cost of water supply throughout the kingdom is called for by Parliament.

The cost at which water is sold in large quantities by water companies, or by corporations or other public authorities, may throw some light on the price of supply as a comparative question. At the same time, it is necessary to have full information as to the source of water supply in each case, in order to understand how such a price is fixed. As a general rule, water is sold in large quantities, measured by meter, at a lower price than the average charge per 1,000 gallons. This is right and fair, as distributory cost is, to a great degree, saved in these cases. In London, the selling price for trade purposes varies from a maximum of either 9d. or 7½d. per 1,000 gallons to a minimum of 6d.; the price to domestic consumers, as arrived at by comparison of the quantity delivered and the revenue received, being 7·3d. per 1,000 gallons. In thirty towns cited by Mr. Parry, the selling price varies from a maximum of 2s. (at Manchester, and also at Bury) to a minimum of 4d. at Glasgow, with the solitary exception of Plymouth, where water is sold at the extraordinarily low price of 2d. per 1,000 gallons. This is less than the actual cost of pumping and maintenance of works over the whole of the London waterworks, exclusive of any charge for management and collection of revenue, or of any interest on capital. It is thus very interesting to inquire how it is that the Corporation of Plymouth, which charges on a house of 10*l.* rent outside the limits of the borough half as much again as is charged on such a house by four out of the eight London water companies, can afford to provide large quantities of water at this low rate. The reason,—apart from the question of proportionate charge,—is this. The waters of the river Mew, which rises in the lofty mountain district of Dartmoor, are diverted at 3½ miles from its source, and allowed to flow directly into four high-level service reservoirs, from which they are delivered by gravitation, without incurring any expense for pumping, filtration, or any other manipulation. This method of supply, which physical geography limits to a very few important towns, represents the minimum cost at which water can anywhere be obtained, and contrasts very forcibly with the numerous sources of expense that occur in the case of London, and in a large majority of the water-supply districts of England.

At the other extremity of the scale the town of Blackburn, at a level of 400 ft. above the sea, collects a constant supply of about 2,000,000 gallons daily from springs and surface drainage, which it sells, for non-domestic use, at a maximum price of 2s., and at a minimum price of 6d., per 1,000 gallons, in proportion to quantity. But the inhabitants of Blackburn have to pay eight per cent. on the rateable value of their houses for domestic supply. The supply is constant, and the consumption is at the rate of 25 gallons per head for all purposes. The London water supply, as to cost, compares very favourably with that of Blackburn, as will presently appear.

The actual cost of the London water supply is so much lower than is generally held to be the case, that it is proper to indicate with unusual precision the authorities relied on for the cardinal facts.

The rateable value of London, within the area of the districts of the eight great London water companies, is stated by Sir J. W. Bazalgette, Engineer to the Metropolitan Board of Works, in his address, as President, to the Institution of Civil Engineers on the 8th of January, 1884, at 28,000,000*l.* The total amount received in the year 1883 by the same companies for water rates and sales was 1,561,811*l.*; out of which upwards of 300,000*l.* was received for sale of water supplied for trade purposes by meter, at prices ranging from 9d. to 6d. per 1,000 gallons. The balance, say 1,260,000, is equal to exactly 4½ per cent. on the rateable value of the property.

The rates which the different companies are entitled to charge vary with an amount of detail into which it would exceed the limits of our space to enter; but, briefly abstracted, and allowing only such extra charges as may be taken to be absolutely indispensable, over an average of the nominal rentals of 10*l.*, 50*l.*, and 150*l.* per annum, the companies are entitled to make a charge of 5·53 per cent. We use the words "nominal rental," because it is on the determination of the basis of charge that the contention now in progress hinges. Thus in the parish of St. George, Hanover-square, the rates are about 22 per cent. under the gross value according to the valuation lists, and the average in the other parishes served by the Chelsea Company is 15 per cent. below the annual value. But in the figures above given it is not the full, but the net, or, rather, the rateable, value (which is usually below that which would be determined to be net value), that has been taken as basis of charge. From this it would appear that the companies have the legal power to receive 1,540,000*l.* per annum for their present domestic supply. As before shown,—and we refer to the authority, viz., the "Analysis of the Accounts of the London Water Companies," by Alfred Lass, F.C.A., p. 11,—they only receive 1,200,000*l.* for that supply. Instead, therefore, of its being possible by legal means, if open war were once declared between the companies and their customers, to reduce the present rates by one-fifth, allowing the utmost reduction that can be claimed as to the basis of rating, the companies are at this moment in the receipt of 280,000*l.* per annum less than they can legally claim.

We are aware that this statement will take many persons by surprise. Certainly it can surprise no one more than it has done ourselves. But the one object that we have in view is truth. These are the figures, and these the authorities. The case is one as to which there can be no mistake, and it is of primary interest to the water consumers of the metropolis that they should have the real facts placed before them.

"ANTIQUITIES FROM ARMENIA."

THERE are now to be seen in the Assyrian galleries of the British Museum a small but interesting series of bronze antiquities, obtained by Mr. Rassam from the neighbourhood of Vau. In 1878 Sir Henry Layard, while ambassador at Constantinople, obtained several fragments of bronze ornaments, which had been found near the town of Vau, in North-east Turkey; but although he made every inquiry, he was unable to ascertain the place from which these antiquities came. On the appointment of Capt. Clayton as H. B. M. Consul at that town the inquiries were renewed, and also by Mr. Rassam. At last the site from which the natives had obtained this first instalment was discovered to be the mound of Toprak Kalla, about fifteen miles from the town of Vau. Excavations being commenced here, there were revealed the remains of a very interesting edifice, evidently a temple of the chief Vaunic deity, Khaldia. The building was remarkable in construction, in that it differed in situation, style, and construction from all that might have been expected in this region. Although there were several eminences overlooking the lake, the temple was built on an artificially-constructed mound, approached by a made causeway. Along the sides of this sacred way were placed at regular intervals a series of plain stone monoliths, uninscribed or ornamented. The walls of the building were built of sandstone, but faced inside with most carefully-cut blocks of black basalt, formed with the greatest accuracy. The reason for this mode of construction is to be found in that slavish copying of Assyrian art and architecture which characterise the Vaunic people. Late in the tenth century before the Christian era they had borrowed the cuneiform writing from the Assyrians, having been brought into contact with the armies of Assyria by the wars of Assurnazirpal and his successors, and in all matters of art they were most studious copyists of the mode of Assyria. The temple was, no doubt, built on this artificial mound and elevated causeway, in imitation of those on the lowland plains of Assyria, and faced with hard stone, as the walls of sun-dried bricks in Nineveh were with gypsum and limestone. The Vaunic temple, however, differed in several points from the Assyrian. Its entrance was by a pilastered front or columned portico, and the roof was not a flat or domed one, but a gabled one (see Botta, pl. 141). The space between the cornice and gable is filled in with a kind of trellis-work. During the excavation at Toprak Kalla there were found a number of small black and white tesseræ or tiles, which appear to have been used to decorate the walls, and which, no doubt, were the component parts in the decoration represented in the above-mentioned sculpture from Khorsabad. During the researches on this spot there were discovered a number of bronze fragments of considerable interest, as showing the modifications which Assyrian styles were undergoing at the hands of Vaunic artisans, who made them their canon. The first of these is the figure of a couchant winged bull. The example is manifestly copied from the Ninevite forms, but the excellent proportions there observed have been violated, and the result is a figure which approaches very closely to the conventional style of the bulls at Persepolis. It has been long enunciated by Professor Fergusson that the Assyrian winged bulls were used in architectural work as supports for columns, and his theory has met with confirmation by the discovery by Mr. George Smith ("Assyrian Discoveries," pl. iv.) of a small model of a winged bull bearing on its back the base of a column. There is also from a palace at Nimroud a small couchant sphinx, probably of the time of Esarhaddon, which has served a similar purpose. The example from Vau, however, is a stronger proof still, as not only the base but a considerable portion of the column remains. This column exhibits a disregard of the law of proportion such as we might expect in the work of a people who had no distinctive art of their own, and is covered with ornamentation, consisting of a pattern resembling the *swastika* inserted in a square. It is important to note that we find this same ornamentation on the Hittite sculptures at Carchemish. Together with this important fragment were found several portions of large bronze bowls, the handles of which were formed by the heads of cows, exhibiting a manifest copying from Assyrian examples found by the explorers at Nimroud. Some fine plates, of nearly pure copper, moulded to represent a fortress, appear to have formed part of an altar, and together with these is a finely-worked angle-joint, decorated with the honeysuckle and guilloche patterns. Most important, however, are the fine bronze shields, as by means of them we are able to establish the date of these works. There were found in the explorations several portions of bronze shields, three being in fair preservation. These shields have as a decoration concentric bands of lions in motion, divided by a wavy water-line band, the boss being apparently a lion's head. The shields bear on them inscriptions of a king named Rusas, the son of Argistis. This monarch was the contemporary of Assurbanipal, king of Assyria, and in B.C. 645 paid tribute and made homage to him. It is, therefore, interesting to find at this date the elements of that bizarre style which became dominant at Persepolis already developing in Armenia.

WREN'S CITY CHURCHES.*

A very wise and experienced friend once gave us this advice, "Whatever temptations a book may offer to the reviewer, never forget to treat it and its author with respect. It is presumably the best he has to give, and he is no doubt unconscious of the blemishes which are obvious to others."

We have striven, and shall strive, to observe our friend's prudent caution, and treat the author with all the respect to which he is entitled. A writer careless of such restraint might liken the work before us to the delirium of a student whose health had failed while cramming for an examination in Ruskinism. We shall take it as a serious effort to help a cause with which we heartily sympathise.

The book is substantially a reprint of a lecture delivered in behalf of the preservation of the City churches when their wholesale destruction was imminent, and the author is an enthusiastic if not a discreet advocate. With him the doomed churches are the highest efforts of architectural skill, and their architect unique in his art. We will heartily admit his remarkable ability, and have always felt grateful for the "crown of towers" with which he has adorned our capital city. But in order to give him his due meed of praise there is no necessity to disparage Mediæval art, to deny its greatest works any "unity of design," or to affirm that its builders worked only by "rule of thumb"; and the claim that Wren's towers and spires are not "piled column on column *as the Goth shot up his spire*, or, again, as the Chaldees build Babel tower: but all is controlled by just principles of proportion, and determined by *appropriateness of position*," is in a double sense grotesquely inaccurate. "Can *any* mediæval tower or spire," the author asks with sublime effrontery, "compare with this [St. Stephen's, Walbrook] for richness of form, for nobility of structure, and sensitiveness of proportion? Can *any* other example be found which in so small a space has so much interest, so much thought?" Such extravagant praise and blame only discredit the judgment of the advocate who employs it. Wren was first of all a mathematician, and had thus one of the best of qualifications for his task. He was, moreover, imaginative and versatile, and his versatility found a scope in the greatest opportunity that ever fell to the lot of an artist. It was only by accident that he became an architect, and to the last his bias was towards the experimental sciences. It must, moreover, be remembered that the destroyed churches were varied in form, and it is probable that, having been impressed by the lightness and grace of the Mediæval towers and spires, he sought to reproduce their effect by means of Classical features,—the only ones with which he was familiar, and he succeeded. His spires are Gothic in *motif*, though Classic in detail, and, while their general form and proportion are almost always pleasing, their details are often inconsequent and unmeaning. Wren was a keen man of business. Two days after the Great Fire, Evelyn called upon the king with a plan for rebuilding the City, to find, to his astonishment, that Dr. Wren had forestalled him. He appears to have set about his work much like his weaker brethren of to-day, and it is amusing to find him in Paris, whither he had fled from the plague, buying all the engravings of grotesques and ornament he could come upon to introduce in his English works—the French, he said, excelling in this branch.

The circumstances of Wren's career are pretty well known, and the author adds nothing to our knowledge but the (doubtful) statement that the religious and political conflict of his time fell upon him with "peculiar intensity," and that "contending brain-tempests wove his swaddling clothes." As a matter of fact, he steered his course amidst religious and political shoals and rocks very adroitly and securely. He lived under five Sovereigns and a Commonwealth. Through the Revolution and the Rebellion and religious changes without end, and while the more prominent men in every walk of life were sent to the dungeon or the block for opinion's sake, he contrived, in a double sense, to keep his head.

The book is in some respects a singular one. In the first place, the author employs in writing *up* Renaissance art an imitation of the manner which Mr. Ruskin so effectively employed in writing it *down*. It is assumed that in some way the writer is a disciple of Mr. Ruskin (it will be observed that the book is issued by the sacred publisher of Orpington); but it is the master's manner only which is followed, and not his spirit. Whatever Mr. Ruskin's religious creed may be, no one doubts the strength of his sense of personal religion. He is an uncompromising Theist, and a firm believer in the Divine order and government of the universe; while his imitator sedulously avoids any reference or allusion to the spirit which inspired the erection of the structures whose cause, as works of art only, he pleads, and he would be quite content (p. 102) to see them converted to secular uses. We are all familiar with Milton's "star y-pointing pyramid," and with the common and beautiful suggestion that the church spire was intended by its Mediæval builders as an index to the life beyond the grave, leading men's ideas and aspirations heavenward. The following extract will show how far, in the same direction, the author takes us. Of the (admittedly) beautiful Bow steeple he says, "How quiet the transition between these contrasting portions, where sleeping lines seem one by one to wake and lift themselves up till they climb over each other in eager desire to lead the eye upward to,"—to what?—"to the *great dragon* high poised in mid air above"!

The opening sentence of the book may be taken as a fair sample of the author's style:—

"Alone in the art of a people long since passed away, do we get given us the entirety of its nerve life,—its expression, by own tongue and hand, of pulse-beats and throes of heart, its elating joys and saddening sorrows, its grief, gloom, and gleam of glory."

At every turn we meet with such phrases as "reading lightly lithic language," "many mingling melodies of form," "pale pillars of pearly light," and such like. It must, we suppose, be assumed that there are readers who can endure and even enjoy this word-jingling. But why, we would respectfully ask, if the writer really feels it to be a misfortune "that the weaknesses of great men should be caught up and caricatured until the world is deluged with frothy literature under the shadow of Ruskin's name,—babbling waters of cant,—streams muddy with the dregs of democratic reform" (!),—why, we repeat, still respectfully, does the writer aid in the dissemination of this diluted and polluted Ruskinism? Mr. Ruskin's greatness (which we take to be somewhat over-estimated) is not due to his manner alone. That, of its kind, is, however, almost faultless. He would never have passed in a proof such an expression as a "rectilinear line," and the perverse and persistent imitation of Mr. Ruskin's worst tricks of style is doubly irritating in a writer who can, and does occasionally in a sort of happy forgetfulness, deliver his tidings like a man of this world.

One question more. Why, if the writer really sees such ineffable beauty in Wren's work, does he so cruelly misrepresent it in his only engraving?

Here is a description of a view from Fleet-street, looking towards St. Paul's:—

"But we must now pass on to St. Martin's. The grace and delicacy of this steeple form, as its spire in trembling notes ascends the sky are of such a quality that words can hardly awaken that fine sense of form by which alone such a pure lyric in architecture can be appreciated. In this, as in all art born of a poet's mind, one is ever forced to fall back on this intuitive perception, which, when wanting, can never be artificially gained.

However, I would refer you to one or two points. At first glance, who that can at all appreciate its beauty, is not enraptured with the melody of its many mingling notes of form, its dancing buoyancy and splendid balance? Or who can help but be fascinated by the delicate ease with which the different curves glide each into each, enchanting the eye, as upward 'tis led from long stretch of vertical line below to the finely-finished needle crest above? Hardly a movement is there of its quiet surface, which, abutted by houses on either side, not until it has lifted itself clear of these busy buildings does it give us the first note of its melody of form.

And how soft, how grand, are these first notes, so like the opening chords of a Beethoven symphony!—how quiet the transition from square of tower to the octagon of spire! How bold that soft sweep of scroll which unites the aisle coping with the tower flank! So, this balcony, which fringes the spire, as some petals the pistil of their flower [we know, by the way, how meanly Wren thought of fringes and edgings], how well it echoes back the columned balcony that fringes the dome of its mother church," &c.

In walking up Ludgate-hill we see, 'as maiden 'tween two warriors strong,' pale Martin's tower standing 'mid Paul's stout porch pinnacles,' its sable spire brought clean against the cathedral dome . . . . which vies in buoyant grandeur with the domed and pillared clouds above."

We will not criticise in detail this wonderful passage. Byron describes, we think, Medora's plaintive love lay as "trembling into silence," and the thought is pretty and appropriate; but a trembling and dancing spire! However, our point is, that in the engraving which is supposed to illustrate the scene described, all its beauties are turned into deformities, and all its deformities are exaggerated. The drawing is not only faulty; it is the very worst drawing of the cathedral we have ever seen. Every good point in the structure is overlooked or falsified. It is toppling over. The cupola is not poised upon the centre of the dome. The dome is not of the contour of the original. The base is not a circle. The lines of its colonnade are crippled, the intercolumniations follow no rule; the solid counterforts which give such a steadying look to the whole are omitted; the crowning cornice is a clumsy cordon. The "stout porch pinnacles" are not a pair, nor on the same plane; and the nearer one is the smaller of the two. "Pale Martin's Tower" has not a line which is even approximately right, and we are at a loss to conceive how any draughtsman could acknowledge the authorship of such a drawing. We say nothing of the toy-train, the ghostly figures in the street, and the general want of perspective. The plate is characteristically underwritten, "Soul Strivings from Struggle into Calm," and a sickly sentimentality pervades the whole, as unwholesome of its kind as is the literary style of the author. Biographers and apologists have in recent years played strange pranks, and their literary treatment of departed friends has gone far towards adding a new terror to death.

It is hard upon unassuming merit that it should, after the sleep of centuries, be dragged from the tomb only to posture involuntarily in a character which would have been repugnant to the original when alive. And these posthumous panegyrics of over-zealous but undiscriminating admirers will, if unchecked, tend, it is feared, to extinguish all contemporary ambition, the penalties following success being so severe.

NOTES.

The occurrence of what we may take to be the most severe shock of earthquake of which we have positive record on this island demonstrates to us unpleasantly the mobile character of the crust of the globe on which we live; a fact which in these latitudes is usually not forced upon our ordinary and unaided senses, though constantly evident where special and delicate means of observation are employed. The immediate effects of the shock have been serious, and in some localities disastrous, and to be added to the immediate injury done to life and property is the anxiety which such a visitation naturally leaves behind it as to its possible recurrence, and the sense of insecurity arising from this feeling. There seems to have been something very unusual in the condition of the earth lately, of which it may be presumed that the great Krakatoan eruption and earthquake, the extraordinary sunsets of the year, and this present unusual visitation on our own shores, are all various manifestations not unconnected with each other. The most unpleasant consideration for us is that where

* "Wren's City Churches." By A. H. Mackmurdo, A.R.I.B.A. Published by G. Allen, Sunnyside, Orpington, Kent.

earthquakes have occurred they are likely to occur again; at least, there is considerable evidence towards that conclusion; though we can hardly think that the phenomenon of this week is any prelude to our becoming an earthquake country, at least to anything like the extent to which tropical localities suffer At all events, the occurrence ought to give a new impetus to our observations in seismology, to the end that we may, at least, have some chance of forming conclusions as to the probability of a recurrence of the calamity, and draw from a close observation of the minor movements of the earth's crust some warning as to the condition in which it is, and the chances of more serious movements supervening, so as to be on our guard against the results. That is, unfortunately, all that we can do. For any preventive measures, an earthquake leaves us absolutely helpless. We have our lightning conductors to manage the thunderstorm, but we have no earthquake conductors; we know neither its conduct nor (except in a conjectural manner) its cause; and no one can go down to see. Perhaps the most practical immediate comment which we, from our point of view, can make in regard to this event, is to invite any persons with practical knowledge of buildings, who may have been at any of the spots of greatest disturbance, to send us reliable information as to the special effects of the shock upon buildings of various construction, so that if there seems any tendency to a recurrence of earthquakes here, we may have the commencement, at least, of some data as to the best means of construction for minimising their effects on buildings.

THE committee appointed by the Prince of Wales to consider the decoration of "Wellington Place" have reported in favour of the Government scheme of removing the present statue to Aldershott. In recommending that Mr. Boehm be entrusted with the execution of a new equestrian statue, we observe that the committee adhere to the statement that the late Duke never sat for the existing statue, in spite of the positive evidence to the contrary which has been published, and assert that in consequence Mr. Boehm will have just the same advantages as the original sculptor. The other decisions are that the Place shall be laid out as designed by Mr. Fergusson (which, we hope, will include obliterating the present feeble "surveyor's" plan, and starting on a new basis), and that the arch should be completed according to Decimus Burton's design, with an enrichment of bas-reliefs and sculpture, and a quadriga, as shown in the original model and drawing lent by the Royal Institute of Architects. This is the most satisfactory portion of the report, as at length doing justice to the favourite work of a very able architect; though we cannot but regret that this decision was not come to before the close of Burton's long life, that he might at least have had the satisfaction of seeing the completion of his design, the treatment of which during his life time caused him the greatest vexation. The "quadriga" is to be thrown open to a limited competition; we suppose as a kind of "sop" to the sculptors for the refusal of open competition for the statue, which every one had certainly been led to expect. In the course of the discussion of the vote in "Supply" on Monday last, one speaker expressed the feeling of many people outside the House in saying that Mr. Boehm did not occupy such a position among the sculptors of this country as to justify the expectation that in excluding every one else and putting the commission into his hands they were doing the best for the work. In the further discussion of the subject the House was as amusing as it generally is on matters of "taste." Sir Robert Peel added his name to the list of those who profess inability to understand why the existing statue was in any way objectionable in its former position.

AMONG the more valuable documents which Mr. Maxwell Lyte has found in the muniment-chests at St. Paul's Cathedral are the contracts for building houses, tenements, &c., upon the Chapter property in town and country, and for repairing churches in capitular patronage. Of these contracts a large number belong to the fourteenth and fifteenth centuries. The language employed in them is usually Latin or French, and occasionally a mixture of both. It is scarcely necessary to say that the Latin is not strictly classical, nor the French that of modern Paris. Technical terms are sometimes given in the vernacular. Thus, in an agreement made in 1347 (21 Edward III.) with Richard Coterel, carpenter, for the construction of a wharf upon the Thames side, it is stipulated that the posts, 12 ft. high, shall be firmly joined, one to another, "que quidem constructio vocatur Anglicè *Nedlyng*." Again, in a contract for roofing the chancel of Halstead Church in 1418, the particular form to be adopted is to be that known as a "chareroof." It was to contain thirty "copulæ," measuring 8 in. in breadth, like the roof of the chancel in Romford Church, the intervening spaces to be filled with "Englyssh bordes," as in Romford Church above the high altar. In other agreements mention is made of "Estricche bord," "Flandrysch tyles," "plastrum de Parisis" (1335), "planchis bord de coer de keyne bone et nette" (heart of oak), &c. An interesting agreement, dated 1348, provides for the rebuilding of the chancel of Sandon Church (Herts) upon the old foundations. The walls were to be 17 ft. high; the east wall to have a window with three divisions, called "dayes," and each side wall two windows, similar to the said chief window, but containing only two dayes apiece. At each of the two chief angles there was to be a buttress, 5 ft. in breadth and 1 ft. 6 in. in thickness, and a buttress of like size in each of the side walls. There was to be a suitable door on the south side. For this work Thomas Rykelyng, stonemason, was to have the stone of the chancel and 20 marks. Taking the mark at its ordinary value of 13s. 4d., the whole work would have been executed for less than 14*l*.

AN important painting by Mr. Tadema is to be seen at Mr. Lefevre's Art Gallery, 1A, King-street. The picture, which is entitled "The Parting Kiss," is a scene in the vestibule of a Roman house, where a mother is parting with her child, who is going off with a friend, who waits in a chariot half seen through the doorway. The view through the open door shows us also the paved road and the shops, and the amphitheatre closing the view, with the masts from which the velarium will be swung standing up against the blue sky. Apparently it is gala-day, for another carriage is seen driving off in the direction of the building. The picture is marked by all the artist's usual power in representing Roman architecture, accessories, and costume. The "restoration" of the chariot forms an interesting point in it. The same gallery contains an admirable portrait of Mr. Tadema, by Mr. John Collier, under the title of "The Artist in his Studio."

SIR WILLIAM HARCOURT'S Bill seems to have "raised the waters," to adopt Launcelot Gobbo's phrase, and various correspondence is going on against it, and meetings have met and resolutions been resolved for the most part condemning it *in toto*, and some one has been at the trouble to compile all the journalistic expressions adverse to it and publish it under the title of "Public Opinions on the Government of London Bill." With some people public opinion means that which agrees with their own opinion. As far as the adverse expressions within the area affected are concerned, they seem to be mostly the bitter cry of Vestrydom in its various phases. An ex-Mayor of Boston, however, who may be disinterested in his expressions, states that New York had various municipalities with independent action within its area, and that the intention had once been to consolidate them, but that the first steps towards this proved so "confusing, corrupting, and unpopular" that the idea was abandoned, and New York remains with local district government. It has yet to be learned, however, how much of this confusing and corrupting influence in the endeavour to introduce the change was due to influences from which we may flatter ourselves that our Parliamentary Government, with all its defects, is free. There is a good deal to the point to be said on both sides, no doubt; and a great deal more will be said which is not to the point; but we anticipate that in its main provisions the Bill will become law.

THE æsthetic sense of the Londoner seems to be gradually awakening. We have got rid at last of the Duke off the top of the arch, and now we read of a meeting of the Vestry of St. Ann's, Blackfriars, at which a resolution was passed, not only condemning the construction of the viaduct of the London, Chatham, and Dover Railway over Queen Victoria-street (constant complaints having been made of "the rain percolating through the structure, and dripping in the shape of dirty water upon persons passing underneath"), but also protesting against its ugliness, and recording the opinion that "the bridge should be rendered less unsightly, and more in accordance with the improved architecture of the surrounding buildings." We cannot feel very much enthusiasm about "the architecture of the surrounding buildings" (the *Times* office, for instance!), nor are we quite sure that Queen Victoria-street has superseded Ludgate-hill as the "leading thoroughfare" of the neighbourhood; still, that railway companies should be required to make their structures less ugly, and that the suggestion should emanate from a vestry meeting, are signs of the times. Perhaps we may hope to see a suggestion made presently to improve the Ludgate-hill bridge also.

THE special meeting of the Institute of Architects last Monday evening to consider proposed changes in certain by-laws did not result in much. The most important point to be discussed, the alteration which was practically to bar any one from becoming a Fellow of the Institute without passing an examination (unless in cases to be specially excepted by the Council), was understood to be put out of court at present by the interposition of the legal advisers of the Institute, who were not satisfied of the legality of the proposition in reference to the terms of the charter. Then Professor Kerr, who was to move the other propositions, partially abandoned his colours by intimating that he did not wish to "press" his resolutions, but only, apparently, to gently instil the ideas embodied in them into the minds of members, and leave them to bear fruit. One of these propositions was for the appointment of an honorary secretary for foreign correspondence, independently of the present honorary secretary. Professor Kerr, in fact, was stirred by the remembrance of the days when Professor Donaldson, in the capacity of "foreign secretary," exercised so much personal influence among Continental architects, and was the channel for bringing before the Institute so many communications of special interest. We should be quite in favour of the appointment suggested if another Professor Donaldson could be found, and we imagine that was the general feeling of the meeting; but as such a successor is not at present forthcoming, the *status quo* was voted by a large majority.

WE learn that the Council have decided to arrange in the Parkes Museum a collection of models and illustrations of objects relating to cremation and improved forms of burial and disposal of the dead, as a supplement to the International Health Exhibition, this subject not being included in the classification of that Exhibition. The Council will be very glad to receive offers of models or other information, as they wish to make the collection fully representative of the latest and most approved plans and methods.

THE exhibition of 100 pictures by "100 artists" at the Fine Art Society's Gallery in Bond-street has not produced a very remarkable or happy result, nor can we see any especial motive for that form of exhibition except the desire to produce a popular alliterative title. Some of the artists represented are unknown to fame, and had better have

remained so; others of higher reputation seem to have sent their poorest works. Among the exceptions is a really fine nude study of the head and bust of a woman by Mr. J. Collier (46), under a poetic title which is quite at variance with the realism of the painting. Mr. Colin Hunter's "Low Tide" (16) is a good specimen of his style; and there are some good works among the water-colours, some of which have been already seen elsewhere.

M. Clermont-Ganneau has given, in a letter to the *Times*, an amusing account of one of the last developments of archæological forgeries at Jerusalem. This is in the manufacture of terra-cotta lamps, "little antique lamps, belonging for the most part to the Christian epoch, and found by hundreds in Jerusalem and its neighbourhood." These *Lychnaria* (the name derived from an inscription on one of them) bear curious Christian symbols, and often Greek inscriptions. The lamps, which were moulded separately in upper and lower pieces, and put together, are easy of imitation, and numbers of counterfeits have been made; but the forgers are not content with Greek inscriptions: they have learned to fly at higher game now, and their lamps must have Hebrew inscriptions! When people go in seriously for deception, it is possible to be too clever by half.

There is to be a competition, open to all French architects, for a new Palais de Beaux-Arts at Lille, which is to be erected in the public square, facing the Prefecture, and to concentrate all the existing art collections of Lille in one building. It will include a museum of paintings, ceramics, pottery, and various other antique art, decorative art, and eventually a museum of sculpture, though this does not appear to be part of the immediate scheme. The celebrated Wicar collection will also be housed in the new building.

Those who are practically interested in the question of the prevention of fires in theatres should look at the papers on the subject by Mr. Arthur Shean and Mr. Woodrow, in the Journal of the Society of Arts, published on the 18th of this month. The former gentleman details a good deal of his experience and observation in regard to the existing arrangements at London theatres, and Mr. Woodrow deals with the theory of the subject, and the points in regard to planning and construction to be avoided or insisted on for rendering our theatres more safe from conflagrations and their attendant consequences. The distinction between the ideal conditions and the actual facts in regard to most of our theatres is striking enough; yet the recommendations made are only such as ought to be followed in all cases, or as nearly as possible.

Mr. Redman's paper at the Society of Arts on Wednesday evening, on the subject of "Thames Communication," was an able and lucid summing up of the problem, with a statement of the special difficulties attending each scheme. Mr. Redman thinks that a new bridge between London Bridge and Southwark Bridge would be the best means of relieving the traffic of the former; a proposition which is, of course, incidental and wide of the real point to be dealt with. On the main question he sums up very much as we have done already, believing that further communication below London Bridge is much required; that of all permanent and fixed methods of passage a tunnel will be attended with the fewest drawbacks, unless exceptional difficulties in the nature of the ground are met with; and that before any permanent and costly scheme is entered upon, the experiment of ample ferry-boats, crossing at short intervals, should be fairly tried.

Employers' Liability Assurance Corporation (Limited).—The directors of this company are now issuing their third annual report, and have resolved to recommend a dividend of 2s. 3d. upon each of the 2*l*. shares of the corporation, carrying forward a reserve of 20,966*l*.

CO-OPERATIVE BUILDING AND THE FRENCH COMMISSION.

The *Official Journal* has commenced the publication of the evidence given to the Parliamentary Commission; but our readers are already acquainted with some of the main points relating to the building trades. For the minute details, it will be necessary to refer to the *Official Journal*, and doubtless many months will elapse before the entire report is completed. Among the various speakers whose declarations lack of space prevented our noticing at the time they gave their evidence, the Director of Public Works at Paris, M. Alphand, must certainly occupy the first rank. M. Alphand, it is true, only spoke in his own name, and not as the representative of the public authority, but this will scarcely reduce the influence his words are likely to exercise. We have seen how the employers, representing a great variety of trades, all complained of the tariff established by the town, arguing that it had an unfair influence on the scale of wages. M. Alphand promptly met this complaint. After remarking that what might be called the Paris Board of Works, over which he had the honour to preside, had been in existence fourteen years, he went on to explain that the welfare of the working-classes had always been considered by the town as a matter of paramount interest. Not only did he proclaim it as a principle that the strong were in honour bound to protect the weak; but, where the Government was based on universal suffrage, it was dangerous to neglect the interests of the masses. The rate of wages the town should pay to the workmen in its employ was always looked upon as a question of the highest importance. The administration had established a scale of wages for its own guidance, but it soon became the custom to take this scale as the basis for all estimates. Private firms, architects, experts, and even some tribunals have all adopted the tariff of wages paid by the town. It must not be thought, however, that this weighty question was settled merely according to the ideas of M. Alphand and his subordinates. On the contrary, delegates, both from the workmen and the employers, were convoked and consulted. On both sides, it was agreed that an augmentation in wages was necessary. The authorities at first objected; they pointed out that such a rise in wages would check the building enterprises then so much in vogue. Also, it would tend to raise house-rents, and the workmen themselves would then be the first to suffer. Nevertheless, the latter insisted that they ought to earn 8s. per day; and it was in spite of the resistance of the administration that the wages of artisans connected with the building trades were augmented on the whole to the extent of about 40 per cent.

This intervention of the State in the matter of wages does not seem to meet with M. Alphand's approval. The pressure is purely moral; there is no law to enforce the adoption, by private enterprise, of the rate of wages paid to those engaged in public service; still this has so far influenced the Paris labour market, that, in many instances, it is now impossible to compete with foreign trade. M. Alphand, therefore, considers that the establishment of an official scale of wages is an error which must be renounced at no distant future. Nevertheless, M. Alphand recognised that the labour question was in a critical condition, for the most absolute mistrust prevails between workmen and their employers. For many years, the advocates of every conceivable political party have promised that the condition of the working classes should be improved; but these promises have never been fulfilled. Not only is a deplorable feeling of antagonism now prevalent between master and man, but the general conditions of work have been altogether modified. Instead of an individual employer, we now find that financial societies or banks are at the head of the principal building enterprises. But the workman has no confidence in these grand societies. The friendly relations between master and man had ceased to exist, for such companies were obliged to employ intermediaries. The workman was no longer personally acquainted with his employer. Mutual confidence and friendship were alike abolished, and the interests of both parties became more and more antagonistic. The workman soon ceases, under these circumstances, to take any interest or pride in his work; the money it can bring in is the only question in which he is concerned, and he struggles for an increase of wages without any regard for the prosperity of his employer or his trade.

To remedy this grievance, M. Alphand recommends (as we have often recommended) the association of the workman in the benefits of his employer. Nor is this all, M. Alphand would encourage co-operative productive societies where the entire profit goes to the workmen. To facilitate such a movement, M. Alphand has warmly supported the project of constructing, in Paris, a large labour exchange. In this Bourse du Travail the trade unions and co-operative societies of Paris would have separate offices, all demands and offers of labour would be centralised, and all information on such matters readily obtained. This project has been discussed frequently by the Paris Municipal Council, and is viewed with more favour now than some three years ago, when it was first mooted. M. Alphand then went on to explain what had been done by the Prefecture of the Seine, under the administration of M. Charles Floquet, to facilitate the participation of working men's associations in adjudications of works done by the town of Paris. In three years, fifty-seven workmen's societies had obtained contracts for works which they had satisfactorily executed. The total value of these contracts amounted to 54,600*l*., and the town was now about to spend 60,000*l*. in furniture and fittings for public buildings, schools, &c., which it proposed to purchase direct from working men or their co-operative societies.

Dealing with the question of the housing of the poor, M. Alphand declared that there were 480,000 lodgings or apartments in Paris that did not exceed a rent of 12*l*. per annum. It was not, he maintained, the want of tenements that constituted the grievance, but the absence of anything like sanitary regulations. The greater part of the houses occupied by workmen were absolutely unworthy of a civilised nation. In this matter the lower middle classes were as interested as the workmen. These defects were, he maintained, due to ignorance, and not to the necessity of economy. It was quite possible to build houses for working men that would possess all the necessary sanitary qualifications and yet yield a good interest on the capital invested. To relieve the present distress, M. Alphand suggested that the proposed metropolitan railway should be at once built, and this would represent an outlay of 3,200,000*l*.; that the Sorbonne and the Collège de France should be in part rebuilt, and several new schools constructed. With respect to the general aspect of the crisis, M. Alphand agreed with the evidence given by M. Christophle on behalf of the Crédit Foncier, and which has already been summarised in these columns.

Whatever doubts might exist as to the prevalence of exceptional distress were removed by M. Quentin, the director of the administration for the relief of the poor (Bureaux de Bienfaisance). During the last three months the applications for relief had increased to the extent of twenty-five per cent., as compared with the corresponding period of last year. This is the more unfavourable, as the accounts for last year showed an augmentation of distress on those of the previous year. The tendency to abandon aged relatives and infant children was a sure sign of exceptional poverty. In 1882 there were 2,746 newly-born infants abandoned, but in 1883 the number rose to 3,151. These evidences of distress were specially noticeable among the workmen engaged in the building trade and the manufacture of furniture. This assertion was confirmed by M. Camescasse, the Prefect of Police. Thus, speaking of the masons, the Prefect mentioned a firm which employed fifteen men in January, 1883, and only three men in January, 1884. Several other cases showed an equal falling off in the number of men at work. The joiners, the floor-makers, and the house-decorators all suffered keenly, but the stone-cutters and the locksmiths were not so unfortunate. With regard to the moral situation of the workmen, M. Camescasse bore testimony to a great reduction in the consumption of wine and alimentary substances. The number of bankruptcies has considerably increased; the public balls and places of amusement are not so well frequented; and yet crime is not more prevalent than usual, a fact that speaks well for the Parisian population.

With respect to co-operation, M. Barberet was called upon to give evidence. M. Barberet,

it should be explained, was once a popular leader of the working-classes; and he was the author of a labour chronicle which appeared every day in Victor Hugo's paper, the *Rappel*. Ultimately, however, he was suspected of having pledged himself to support the Government, and was consequently denounced as a renegade. In fact, he accepted the position as chief of the Bureau for the Registration of Syndical or Professional Chambers and Friendly Societies,—an office attached to the Ministry of the Interior. It was in this capacity that he was called upon to give evidence before the Commission of the Forty-four. In his statements, he agreed with M. Alphand that the members of the building trades were the principal sufferers, and that by association the workmen could effectively improve their condition. Where trade unions had been organised production was more fruitful, and co-operation gave rise to still greater improvements. If the workmen participated in the profits trade would be greatly increased. A year ago, there were thirty-five productive co-operative societies in Paris, now there are no fewer than sixty-two such societies with more than 2,000 members. The development of the co-operative movement would put an end to the strikes, which, M. Barberet considers, have been specially disastrous to French commerce. He, therefore, urged that facilities for obtaining credit should be extended to co-operative societies. There were in Paris about 200 workmen's trade unions and about 200 trade unions formed by the employers. In the provinces the masters had only 200 unions as opposed to some 600 unions organised by the men. M. Barberet then sought to prove that his office was in no wise connected with the police, and only depended on the Home Office. But to the average Frenchman's mind the Home Office and the administration of the police are so intimately connected that it is impossible to draw the line between the two. Hence the registration of trade unions and benefit societies is looked upon as little better than a police measure taken to hold working-class organisations in check. This explains the signal failure and political weakness of l'Union des Chambres Syndicales Ouvrières, with which M. Barberet was, at least, indirectly connected. The fact that this attempted federation of workmen's trade unions was promoted by persons in receipt of Government pay caused the collapse of the movement.

M. Desmoulins, a municipal councillor, speaking in the name of the Tax-payers' League, also insisted that the building trades had been most severely affected, and urged that to resist foreign competitors it was necessary to encourage and revive the system of apprenticeship, a subject which has also been seriously considered among our own capitalists and master builders. A municipal commission under the Empire had decided to give special rewards to those who had contracts of apprenticeship; but in 1871, when an inquiry was held on this subject, it was discovered that the number of apprentices with contracts was only equal to 2½ per cent. An institution of apprenticeship was then organised at La Villette, and the pupils retained for three years received gifts from the Government. The result was that these young men were able to earn 3s. 6d. to 4s. per day. A professional school for cabinet-makers was now about to be opened in the Rue de Reuilly, and, by the establishment of similar institutions throughout France, M. Desmoulins maintained that the danger of foreign competition would soon be dispelled.

As for the workmen themselves, their views were clearly shown by the members of the National Committee of the Socialist Federation of French Workmen, and have already been explained in these columns.* Dr. Paul Brousse, M. Joffrin, the working-man member of the Paris Municipal Council, Allemane, Balin, and others, have given able evidence in the name of the Possibilist Collectivists; while M. Jules Guesde and Paul Lafargue were heard as the representatives of the Revolutionary and "Agglutinated Impossibilists," as they are called. On all sides the unfortunate middleman was unanimously condemned. The mildest reformers were in favour of simple, self-organised, productive co-operation; but the majority of the working men have already lost faith in co-operation, and embracing, to some extent at least, the teaching of Dr. Karl Marx, advocate the nationalisation of the implements of labour. Their notions of co-operation assume the form of State-organised production, according to the Collectivist schools of modern scientific Socialism. The introduction before a Parliamentary Commission of such new teaching is in itself an event of perplexing importance; but the organisers of the inquiry have, at least, displayed some wisdom in giving the example of free discussion. The difficulties of the present economic position will not be solved by Boycotting all the suggestions of the working-class representatives; and if Socialism is fallacious, this must be demonstrated by patient argument,—if necessary, by practical experiments,—and not, as was too often the practice under previous Governments, by angry threats and the display of armed force.

* See *Builder*, p. 186, *ante*.

THE INTRODUCTION OF PAVING.

IN the days of Whittington and his much-venerated cat it was the belief of all true Englishmen who had never journeyed to London that its streets were all paved with real gold, laid down by the bankers, who were supposed to be the great contractors for paving. Such glorious dreams were, however, soon dispelled whenever one of these dreamers came up to London in quest of a few golden pebbles, especially if he entered the metropolis on a wet day; for he would have found it difficult to find even a flagstone of the rudest description. In those days, the early part of the fifteenth century, the attention bestowed upon roads and streets was very fitful and uncertain. The probabilities are that the first attempts at paving, in the ancient cities, were effected by the wealthier inhabitants, who paved those parts of the street immediately before their own houses; it was, therefore, optional and uncertain.

The Romans, in the time of Augustus, had pavement in many of their streets; and the Appian way was a paved road, constructed as early as 312 B.C. The most commercial cities were the first to adopt the practice of paving public streets. It was from Carthage that the Romans acquired their first idea of its importance, and the City of Rome became paved by degrees. Josephus relates how the Jews proposed to Agrippa, after the building of the Temple was finished, to employ the workmen who had been discharged from building the Temple, to pave the streets of Jerusalem. It is an interesting fact that the remains of Herculaneum show that the streets of that city were paved with lava, some of them having a raised path on each side for foot passengers.

Coming nearer home, it does not appear that London was paved in the eleventh century, if an opinion is to be formed from the details of an accident which is said to have occurred in 1090, in the principal part of the City. Bow Church, in Cheapside, was unroofed by a storm of wind, and four beams, which formed part of the roof, were precipitated to the ground, and penetrated the soft miry soil of the street to such a depth that only 4 ft. of their length was visible above ground, although the entire length of the beams was 26 ft.! In 1417 a royal command was issued, which states that "the highway called Old Bourne was so deep and miry that many perils and hazards were thereby occasioned to the King's carriages passing that way, and to those of his subjects"; he, therefore, ordered two vessels of 20 tons each to be employed at his expense in bringing stones to pave the streets. It may be taken that in England there were few paved streets before Henry VII.'s reign, and that London was paved somewhere about the year 1533, but flagstones were not generally adopted until between 1815 and 1825. Smithfield appears to have been first paved about 1614. Wood and asphalte paving were first tried in 1839, when a wooden pavement was laid down in Whitehall, and several other leading thoroughfares, after which this kind of paving seems to have fallen into comparative disuse.

Sauval, in his History of Paris, relates a circumstance which occurred in that city, which is at once characteristic of the dirty state of the streets, and of the power of the clergy at that period. King Philip was passing St. Gervais on horseback, on the 2nd October, 1181, when a sow ran against his horse's legs, made him stumble, and threw the King, who died the next morning from his injuries. This resulted in an order being issued that no swine should be allowed in future to run about the streets; but this was opposed by the Abbot of St. Anthony on the ground that it was contrary to the respect due to their patron saint to prevent his swine from enjoying their liberty. This opposition resulted in an exclusive privilege being granted to the clergy to allow their pigs, provided they had bells attached to their necks, to revel in the dirt of the streets. The introduction of pavements, however, was only delayed some three years, and was brought about by the following circumstance, as related by Regord, physician to Philip the Second. The king was one day so annoyed by the sight and odour of the dust and rubbish in the streets, that he gave orders to have them paved with stone at his own expense. This occurred in 1184, and cost 11,000 marks of silver. The great improvement thus effected stimulated the authorities of other cities to follow the example. In 1391 Dijon was paved, the Duke of Burgundy contributing 2,000 livres towards the undertaking. By the year 1424 the whole of the streets were paved, with the result that the health of the inhabitants was greatly improved. Then came the difficulty as to how the streets were to be kept clean. After Paris was paved each inhabitant was ordered to keep clean the pavement opposite his own house, but to such an extent was this order evaded that the streets became choked up with rubbish. A law was passed to make the order more peremptory, and, later still, the enforcement of the law was made more rigorous by heavy penalties. This induced the inhabitants to join together in small parties for the hire of men and carts to remove the ever-accumulating rubbish. But still the order was not obeyed by the nobles, who considered themselves exempt from such a duty, the consequences being that many of the squares became dust depôts. Another law made it incumbent on all to perform this duty of getting rid of their own rubbish, but eventually the Government had to make the cleansing of the streets a national undertaking, the first contract price being 70,000 livres per annum.

One of the most curious modes of causing the streets to be cleansed was that adopted at Berlin in 1671, when it was ordered that every countryman who brought goods into the city for sale at the public markets should take away a load of rubbish on his back. In many of the Continental cities the duty of cleansing the streets was shifted on to the shoulders of persons who were regarded as being of low condition. Sometimes the skinners had this tax imposed upon them, at other times the servants of the public executioner had to bear the burden, and, in many instances, this office was added to the number of indignities which were so freely heaped on the Jews in those days.

The Government of Spain, during the Middle Ages, showed some practical interest in public improvements, the city of Cordova being paved so early as the year 850, by the fourth Spanish caliph. The origin of paving in the city of Augsburg, in Germany, may be regarded as typical of what took place in other towns and cities. One Hans Gwerlich, a rich merchant, caused a neat footpath to be laid before his house in 1415; this was so much admired that the Government shortly afterwards paved the whole city.

The various kinds of paving in use at the present time are too familiar to every one to render any notice of them necessary. One of the most prominent signs of advancing civilisation or enterprise in a nation, or in any city or town, is the attention given to its public roads. Some vague idea of the attention given to this subject in this country may be gathered from the fact that when the last census was taken in 1881 there were 4,150 paviours in England and Wales. In the London division alone, apart from the intra-metropolitan counties of Middlesex, Surrey, and Kent, there were 852 paviours, and 607 road-labourers.

The Manchester Society of Architects have made the following awards:—The Society Prize, offered for the best essay on the Manchester Cathedral, has been awarded to Mr. Thomas Locke Worthington. The essay comprises an historical and architectural description of the cathedral from its foundation, with numerous illustrations. Mr. James P. Holden's prize for the best set of measured drawings of Renaissance tombs in the old churches in and about Manchester has been awarded to Mr. Frank L. Heslop.

BRITISH MUSEUM LECTURES.

On Wednesday last Professor Hodgetts gave the first of a new series of six lectures in the Anglo-Saxon Room at the British Museum, to be continued on successive Wednesday afternoons. The subjects of the lectures we have already announced (p. 389, *ante*). We extract some passages from the first lecture, on the subject of "The Earthen Jar." Professor Hodgetts observed that when we regard the remains of any results of ceramic art, whether the rude productions of nomadic tribes, or the refined efforts of highly civilised nations, we find certain points of similarity which lead some antiquaries to the hypothesis that the utensils of ruder nations are but copies of higher forms of art existing among peoples of greater culture, and consequently greater completeness in their artificial productions. The theory that all the world became more or less Roman in a frantic desire to imitate the imperial self-styled mistress of the world has been shown in my former lectures to be untenable as regards the arms and military arts of the Northern "barbarians" who humbled her to the dust. I have shown that she, in her boasted conquest, took much from surrounding nations; that the days of the week and the number of the months were copied by the Romans from barbarians, and not *vice versâ*. Now, because from the very nature of the object, any vessel made on a potter's wheel, —from the Ganges to the Amazon,—partakes of common peculiarities, it would be rather hazardous to say that a form produced in South America by some aboriginal artist was a copy from a Hindu design, merely because it was similar. If anybody will take the trouble to turn a potter's wheel,—or get it turned for him,—while he moulds a vase with his untaught hands, he will be surprised to find how *classical* the first attempt he makes becomes. This only shows that the potter's wheel all over the world produces the same effects and similar forms, but by no means justifies us in saying that the forms we see *must* be Roman, because Roman potters produced similar pots to those made by barbarians.

The forms before us prove no obligation to classic models; they only show that the vessels were formed by Aryans, who had the potter's wheel in common with all members of that race. They are precisely similar to those found in Scandinavia, the pattern observable on some of them being identical with those found on other Northern remains.

In a former lecture I alluded to the structure of the mead-hall, with its high bank and other surroundings, but struck no special key-note for the smaller buildings or rooms which surrounded the chief apartments. At present the sight of the earthen jar before us, reminding us of the various uses to which such a vessel could be applied, and of the places in which it could be kept, brings us to the consideration of the wine-jar, the water-jug, and the funeral urn, with the respective places in the house or out of it which are devoted to their reception.

In the first place, we are informed that there was a regular place or cellar set apart for wine contained in such jars as some of these, and that this place was called the *wín-ærn*, or "wine-place." This was either a cellar dug below the floor of the house (or, at least, under the ground near it), or else a kind of artificial cave made of large stones piled one on another, so as to form an out-building to the hall itself. In such a *wín-ærn* was stored a number of wine *cesters*, or things to contain wine (from the same root whence the word *chester*, an enclosed place, is derived,—having no more connexion with the Latin *castra* than *hate* has with *hat*). In Ælfric's *Vocabulary* we find the word *cantarus* (*canthores*) so translated. Besides these wine *cesters*, we meet, in the *wín-ærn*, with *wín-bæly* (wine sack or skin, or leathern bottle); *wín-cóle*, i.e., wine-cooler; *wín-fæt*, i.e., wine vessel or tub, all of which had their places in the *wín-ærn*. Besides the *wín-cester* (pronounced *chester*), we have the *wín-sester*, which was a measure of fifteen pints, and the two words are very distinctly referred to by Ælfric, who translates *Amphora* by *sester*, and *Enophorum* by *winfæt*.

Not only were there so many various vessels for containing wine, but we find as many, if not more, for those intended for the reception of water,—*wæter-buc*, bucket; *wæter-bydan*, a barrel; *wæter-croc* or *crog* (German, *wasser krug*), a pitcher; *wæter-fæt*, a vessel for water (a flagon); the two latter being earthenware vessels similar to those before us.

When we look attentively into the form of an Anglo-Saxon jar and contrast it with a Roman urn, we see at a glance that it is the production of another race. There is a sturdiness, a thick-set character about an English jug that looks like business. The curves are not so elegant, nor is the whole effect so pleasing to the eye, but it is highly interesting as exhibiting the same kind of curve as is to be found in the centre of many of the older forms of columns supporting Saxon arches.

The circular form of arch is in agreement with the mysterious veneration for the circular form evinced by our forefathers in the construction of their Thing-temples, and, in fact, of every object capable of being well presented in a circular form. Their shields were circular, and many other objects have been spoken of as partaking of this wonder-working form. The zigzag pattern on the arches having no parallel in Italian art, is called specially "Saxon," and the Saxons called it "*fræt*" work. This *fræt* is from the verb *fretan*, to gnaw, devour, eat, and refers either to the saw or tooth-like appearance of the ornament, or to the cutting out of the original wooden arches into tooth-like ornament. It became applied to any kind of ornament that was elaborately worked, and the English goldsmiths of the time of Alfred were remarkable for the beauty of their execution of such ornaments in gold and silver.

Under these circumstances, we ought to feel rather proud of this dumpy jug, which, like nearly all the Anglo-Saxon remains in this "Máthum house" of ours, shows us that our ancestors were men of thought and men of action clearing the way for us.

The word "pot" has been derived by some from *pytt*, a deep place with water in it. I have been led to suppose that it is a corruption from "botle" or "botel," originally a dwelling-house, but used in later times for the dwelling-place of the spirit which wrought so much ill among our forefathers when released. Certainly our "bottle" comes from "botel," as does "pottle," and it would seem an easy matter to get "pot" out of it. On the other hand, there is an Icelandic word *Pottr*, which means a vessel, whether of earthenware or metal, for water or wine, and this would, of course, account for it. But this word does not occur in Bosworth, nor have I met with it in Anglo-Saxon writings; we must have got it through the Normans, indirectly from Icelandic,—unless it be, as I have suggested, a very corrupt contraction of "bottle," or a form of *pytt*.

The word occurs in a vocabulary of the fifteenth century, which is no proof that it was not used before. It only seems to point to its being of Norman introduction. I believe that the vulgar expression "góne to pot" is a corruption of gone to *pytt*, i.e., to the grave. In the edition of "Piers Plowman," by Professor Skeat, he gives us at the end of the "Crowley," or B text of the poem, a short "glossary," in which the *crokk* of the original is explained by "pott." This is of the time of Henry VIII.

Although the word potter is evidently a recent addition to the vocabulary, the *cylene* or kiln, as a place for drying, occurs, and the workman whom we should call potter, is designated *croc-wirhta*, crockery-wright or crock-worker; while the brick-maker or tile-maker is called *tigel-wyrhta*, translated by Bosworth by "a tile or pot worker, potter." The word is from *tigian* or *tigan*, to draw, and the substantive *tigel* stands in the same relation to the verb as the German *Ziegel* (a tile) stands to the word *ziehen* (to draw). In fact, the substantive does not indicate merely a tile, but anything that can be made by the potter and *drawn out* of clay. In Bosworth's Dictionary a remark is made that "porringes are to this day called *tigs* by the working potters." The adjective form is *tigelen*, quasi *tilen*. The tiles used for a roof are called *thœctigel*, i.e., thatch tile; thatch being cognate with the German *Dach*, a roof, or *Decke* a cover. The final *c* in English becomes *tch* in many words, and generally after a *soft vowel* (i, e, æ, or œ), as *wiccæ*, in modern English becomes "witch."

And the men who made these bottles, or jars, or jugs, or urns, also formed the bright tiles of the Saxon roof. When motives of economy did not demand that the materials of the roof should be of humble straw or shingles, then the *tiglere*, or tiler, came boldly forward, and the ridges of the arches were his work, the delicate corrugations of the cupolas were made by him, and, more recently, the bricks of which the various ornamental portions about the windows were constructed, came from his hand. The stone *timberer* (which sounds rather as from a neighbouring island than sober Saxon diction) raised the pile; the *tiglere* formed the roof and many ornaments. Then the earthen vessels in which precious wine was stored were also his manufacture.

In the old Pagan times the tiler formed this very urn, his hand shaped the peculiar ornaments that identify the vessel as the outcome of English skill, and in this cinerary urn the ashes of the warrior were placed. It was, so to speak, the coffin of the brave Pagan to whom we owe so much. The vase that held his wine, the cooler that contained the water which the bright partner of his joys and woes preferred to the more fiery beverage that burned through his veins; the vat that held the beer and mead, to which his followers looked with delight as sufficient reward for dangers which few of their degenerate offspring would care to face, even upon much better terms. All these, and many more highly interesting considerations, flash upon us when we behold the dumpy earthen jar.

LONDON AND MIDDLESEX ARCHÆOLOGICAL SOCIETY.

A meeting of this society was held at No. 4, St. Martin's-place, Trafalgar-square, on Monday evening last. Mr. E. J. Barron occupied the chair, and directed the attention of the meeting to some objects of interest on the table, including a very large bronze arm of a statue, heroic size, recently discovered during the railway works in Seething-lane, City.

Mr. John E. Price, F.S.A., the secretary, read a paper on a recently-discovered monumental brass of Sir John Popham, knight, 1463. The brass was discovered during some repairs in the Church of St. Lawrence, Reading, and, when found, was let into a large stone called a ledger. On the upper side was an effigy and an inscription, "Here, under this marble stone, lieth Walter Burton, gent., 1538," &c., and, on being taken up, the brass was found to be a palimpsest, or rescript, *i.e.* part of a brass that had been previously used for another person. This other person proved to be Sir John Popham, who, according to Stowe, had been buried in the cloister of the Charterhouse, London, where there was a monument to his memory. When the Charterhouse was dissolved the brass must have been purchased by an engraver and used a second time for Walter Burton. Stowe writes, Sir John Popham was a "great builder at St. Sepulchre's, viz., of a faire chapel on the south side of the quire." Besides this accidental association of the name of Popham with St. Lawrence's, Reading, there is another entry in the old accounts which points to a closer connexion, viz., "Anno 1491. Item payd for mendyng of Popham's vestment."

The "vestment," or chasuble, seems to indicate some mass or *requiem* performed here for some member of the family, and, as it required mending in 1498, it was, presumably, of considerable age at that time; indeed, it may have been given by this very Sir John, or his executors, for his commemoration. There is a picture of Sir John Popham on horseback, in the Vestry, presented by the Rev. Sir W. H. Cope, bart., of Bramshill; a copy of an illumination on a MS. in the British Museum. The brass shows part of the feet of Sir John, part of a lion under the feet, handle of sword, and arms of Popham. The full inscription is:—"Hic jacet Johēs Popham Miles quondam Dominus de Turney in Normandia et dominus de Charde-ford de Dene ac de Aldyngton et alibi in Anglia qui obiit xiiij^{o} die menses Aprilis Anno Dmī Millimo CCCCLXiii^{o} [1463] Cujus anime propicietur Deus."

Mr. Thomas Milbourn, Hon. Secretary of the Surrey Archæological Society, next read a most amusing and humorous paper on "London Clubs." The oldest London club, he said, he could find any record of was entitled "La Court de la Bone Compagnie," or the Court of Good Company, temp. Henry IV., and of which Chaucer, the poet, was a member. He rapidly glanced at the history of London clubs from that period down to that of Brooke's Club, Almack's, White's, Beefsteak Club, and others, giving many anecdotes of Sheridan, Fox, and others. The Chairman, in proposing a vote of thanks to Mr. Price and Mr. Milbourn for their papers, made a few observations in reference to

the Lumber Club, whose effects were recently sold by auction by Messrs. Furber & Price.

Mr. J. E. Price, in replying to the vote of thanks, alluded to a fragment of Roman pavement recently discovered in Cloak-lane. Mr. T. Milbourn also replied, and the meeting adjourned to the second Monday in May. The *conversazione* took place on Thursday evening last, April 24, at Drapers' Hall.

PROPOSED MONUMENT TO GARIDALDI AT TURIN.

THE erection of this monument was decided on in 1882 by the Municipality of Turin, who voted 100,000 lire towards the expenses.

The public subscription produced 8,000 lire more; and the competition was opened in July, 1883, requiring designs (executed to a scale of one-fifth real size) to be sent in by the 2nd of December. Besides the premium for the design selected, a second prize of 3,000 lire was offered. There were twelve competitors, and the sketches were exhibited the whole of last December.

The Commission gave the preference to the design of the celebrated Milanese sculptor, Edward Tabacchi, professor of the Accademia Albertini at Turin, author, amongst other monuments, of that of Arnaldo da Brescia. Two other eminent sculptors were distinguished, and divided between them the premium of 3,000 lire; Pietro Costa, author of the monument raised to Mazzini in Geneva, and of that in terra-cotta to Vittorio Emanuele in Turin; and Luigi Belli, author of the memorial in Milan of those that fell in battle at Mentana.

To Professor Tabacchi was entrusted the execution of the monument of which we this week give an illustration.

Most of the sculptors competing for the numerous monuments erected to Garibaldi have been and are prepossessed by the idea of associating the memory of Garibaldi with that of the Rock of Caprera, striving to symbolise the grand historical figure of the hero of humanity, separated from the world, upon his self-chosen monument, the solitary naked rock of the Mediterranean.

Professor Tabacchi has himself followed this conception, but has expressed it with artistic moderation, merely indicating the Sardinian Rock, rather than making it, as too many have done, the entire pedestal, and thus too often producing an abrupt and grotesque effect.

The attitude of the hero is that of his last years,—the meditative repose of a man of action as he thinks over the battles fought and won, and who cannot take rest in a world where there is still so much to be done to confer on humanity the, as yet, but-dreamt-of Peace and Justice.

On one side Italy with a star on her forehead, the trump of fame in her right hand, and the national banner in her left,—on the other side the national lion,—are placed on square blocks at the base.

Signor Tabacchi's monument will be erected on the Corso San Maurizio, near the bank of the Po. The statue of Garibaldi will be twice the size of life, and in bronze; the other sculptured parts in marble in the same proportion, and the basement in polished granite.

NEW SCHOOLS FOR THE LEAMINGTON SCHOOL BOARD.

LEICESTER-STREET SCHOOLS.

THESE schools, now in course of erection, are situate at the northern part of the town, and comprise accommodation for 300 boys, 300 girls, and 400 infants, each having separate entrances in connexion with cloak-rooms and lavatories.

The boys' and girls' school-rooms are of equal area, 65 ft. by 20 ft., with four class-rooms to each, and teachers' rooms.

The infants' school-room is 67 ft. by 24 ft., with two large, and one small, class-room, and teacher's room.

The site being about 10 ft. below the street level, advantage has been taken of the difference of level by forming a series of cloisters for playsheds for the boys, girls, and infants, which are constructed partly in brickwork and partly in concrete. The playgrounds are approached by easy inclines from the front and rear, and are laid with Bradshaw & Co.'s asphalte.

The materials used are local bricks, which are of a light red colour, relieved with mouldings and bands of Staffordshire brindled bricks, terra-cotta, and Box Ground stone. The roofs, covered with slates, are partly open, and the ceilings boarded, stained, and varnished. The dados of the schools and class-rooms are of wood stained and varnished, and the floors laid with wooden blocks. The porches, passages, and corridors have a dado of glazed bricks, and the floors are paved with Staffordshire quarries. The lavatory fittings are of Macfarlane's manufacture, and the latrines fitted up with Wilcox & Co.'s and Doulton & Co.'s apparatus.

The schools are heated by hot-water arrangements, being made for extra heat being applied to the cloak-rooms for drying wet clothing.

SHRUBLAND-STREET SCHOOLS.

These schools are also in course of erection in the southern part of the town, and accommodate the same quantity of children, and are constructed upon the same principle as the Leicester-street Schools.

The architect is Mr. John Robert Nichols, of the firm of Messrs. Geo. Benj. Nichols & Sons, of 54, Queen Victoria-street, E.C., and Handsworth, Birmingham. Mr. John Fell is the contractor for the Leicester-street Schools; and Mr. Thomas Bailey is the contractor for the Shrubland-street Schools. Mr. William Jenkins is the contractor for the heating,—all of Leamington; Mr. W. B. Lait being clerk of the works.

THE CONSERVATIVE CLUB, LIVERPOOL.

THIS important building, of which we give view and plans, occupies a prominent corner site near the Municipal Buildings, and has a frontage of 96 ft. to Dale-street, with return frontages of 107 ft. and 102 ft. 9 in. to side streets. The style adopted is Italian, of a French type, which, as affording a combination of domestic work with palatial architecture, was deemed to be more suitable for the purpose of a city club-house than a too-severe treatment of any particular style. The front towards Dale-street, and the return fronts, with the exception of a portion of the Cumberland-street front, are built of Stourton stone. The portion of the Cumberland-street front referred to is faced with Cliff's white bricks, with red brick arches and stone dressings. The architects of the building are Messrs. F. & G. Holme, of Liverpool, who gained the work in a competition limited to Liverpool architects of the Conservative persuasion.

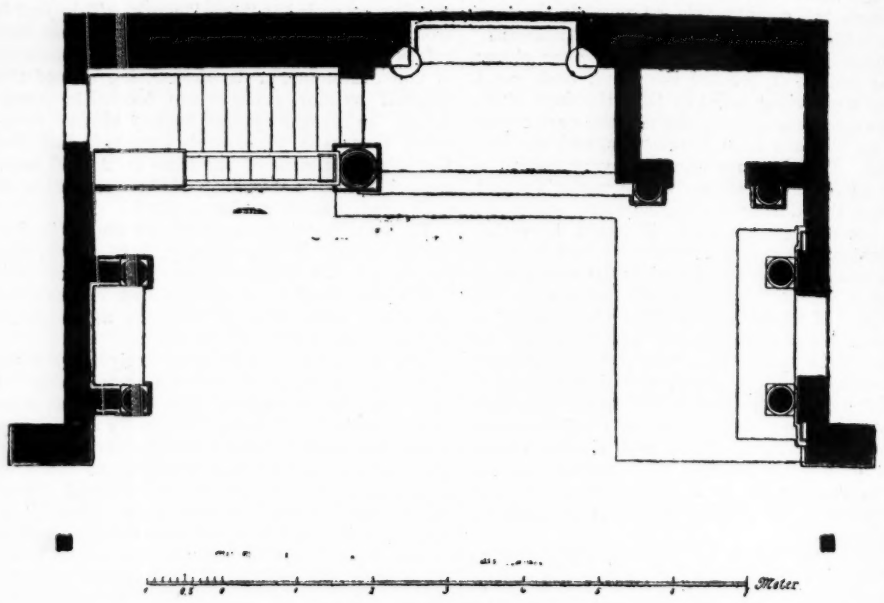
Communion Table, Canterbury. — It should have been mentioned, in reference to the illustration of this in our last week's number, that the work is of walnut wood, intended to be gilded rather richly when the new reredos is carried out. The latter is to be erected as a memorial to Archbishop Tait from the American and colonial churches. We received these particulars from Mr. Scott too late for publication last week.

VESTIBULE IN OLD GERMAN STYLE OF ARCHITECTURE.

THE drawing of a vestibule represents a design exhibited in the Swiss National Exhibition, held at Zurich last year. The fourth side is thrown entirely open to allow the interior to be viewed. The post in front is only connected with the temporary hall of the exhibition.

The object of the decoration was to display as large a number as possible of Swiss stones, combined in a harmonious whole. Above fifty different kinds of stones, principally rich-coloured marbles, were used in the construction, and the most splendid variety of colour was the result. With the exception of the ceiling (of natural-coloured pine wood), and the medallions and arch over the large niche (of natural-coloured terra-cotta), only pure stone and marble materials have been used, and all the ornamental details have been executed in stone, after designs by the architect.

The accompanying cut gives a plan of the



Plan of Vestibule.

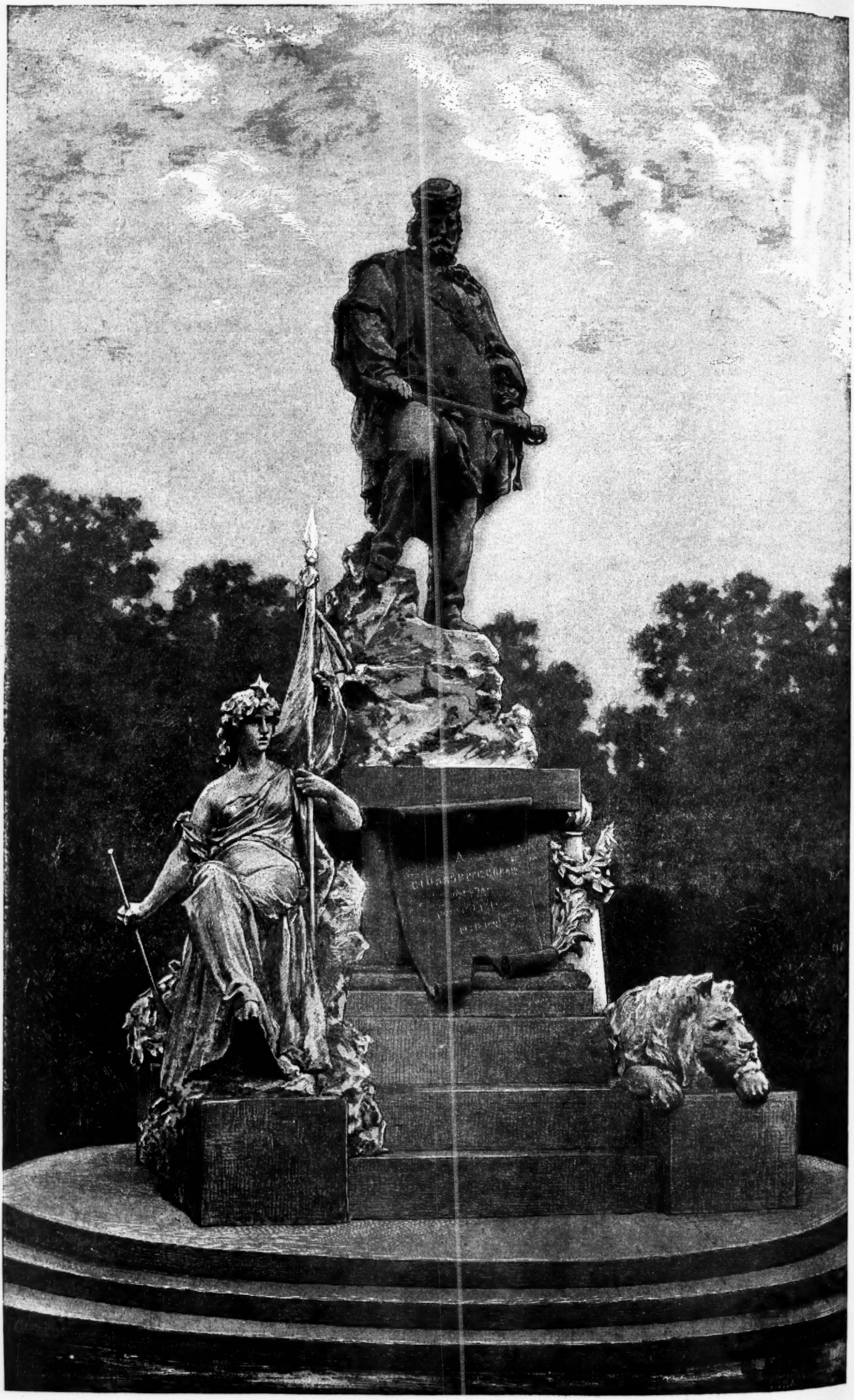
vestibule. The arrangement, as far as is to be seen in the illustration, explains itself. To the left the large chimney-piece, and the stairs to the dwelling-rooms, at the bottom of which is the cushioned seat under the niche. To the right, in a square projection, the door leading to the cellar, and opposite the fire-place a stone buffet or sideboard, over which was a richly-coloured oil-painting by Brimner.

The mosaic to the left of the post was made of different stone patterns, and, for the purpose of exhibiting the different stones, was repeated in several parts of the vestibule.

Forty exhibitors took part in supplying the stones, under the direction of the architect; thirty-three received a diploma (or prize), and a great deal of praise for being the means of showing how rich Switzerland is in exceptionally beautiful stones and marbles. The cost of the work was about 1,000*l*. At the end of the exhibition the vestibule was bought by a Swiss merchant for the purpose of placing in his proposed villa. A. KOCH.

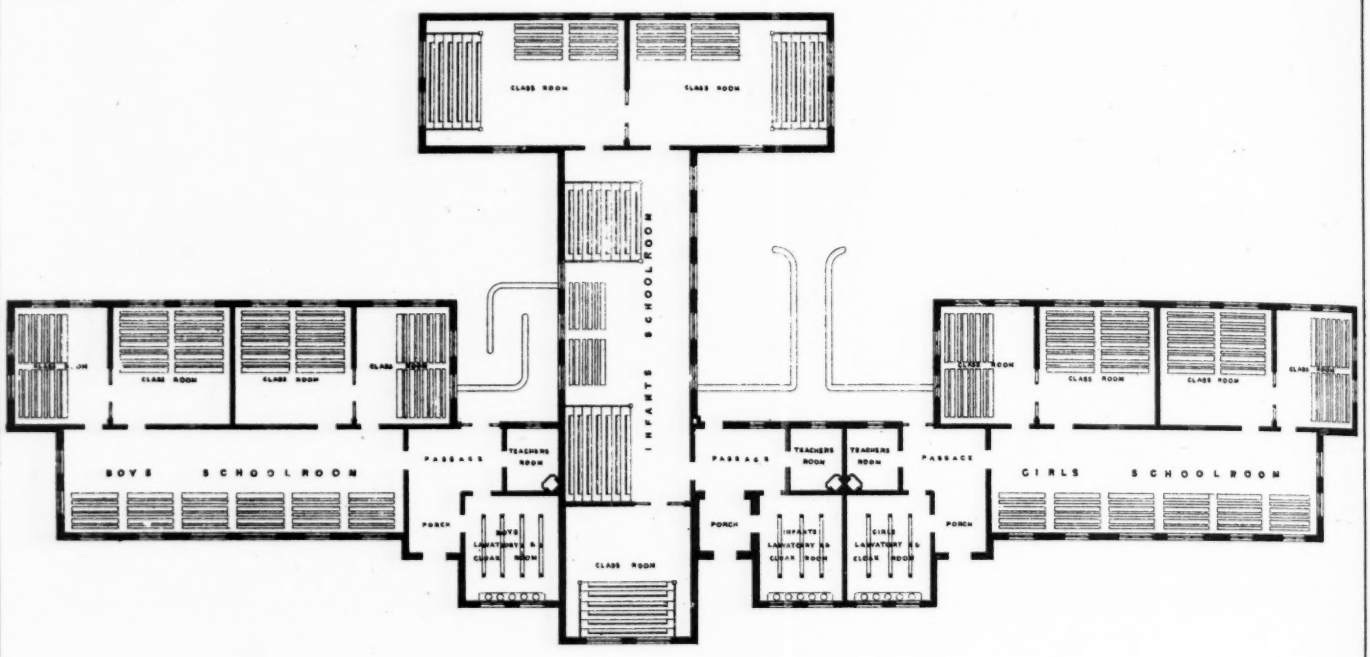
Zurich.

The Isolation of Children in Hospitals. When inquiring on behalf of the Local Government Board into the use and influence of infectious hospitals, Dr. Thorne Thorne found that success in securing the isolation of young children had by no means been obtained at once, but that it had been progressive, and that it had been in the main brought about by the steady diffusion of the reports made by previous patients as to the comforts and excellence of nursing obtained within the several hospitals. An instance of this kind is recorded by Mr. Henry May in a recent report on the prevalence of small-pox in Aston Manor. In the case of a child where the parents refused to part with it, when other arguments failed, the mother was allowed to accompany it into the hospital, and, after a few days' stay, she cheerfully left it there. When the first few convalescents had been discharged, the reports they spread of the kindness and comfort they had experienced made the matter of isolation less difficult.—*The Sanitary Record.*



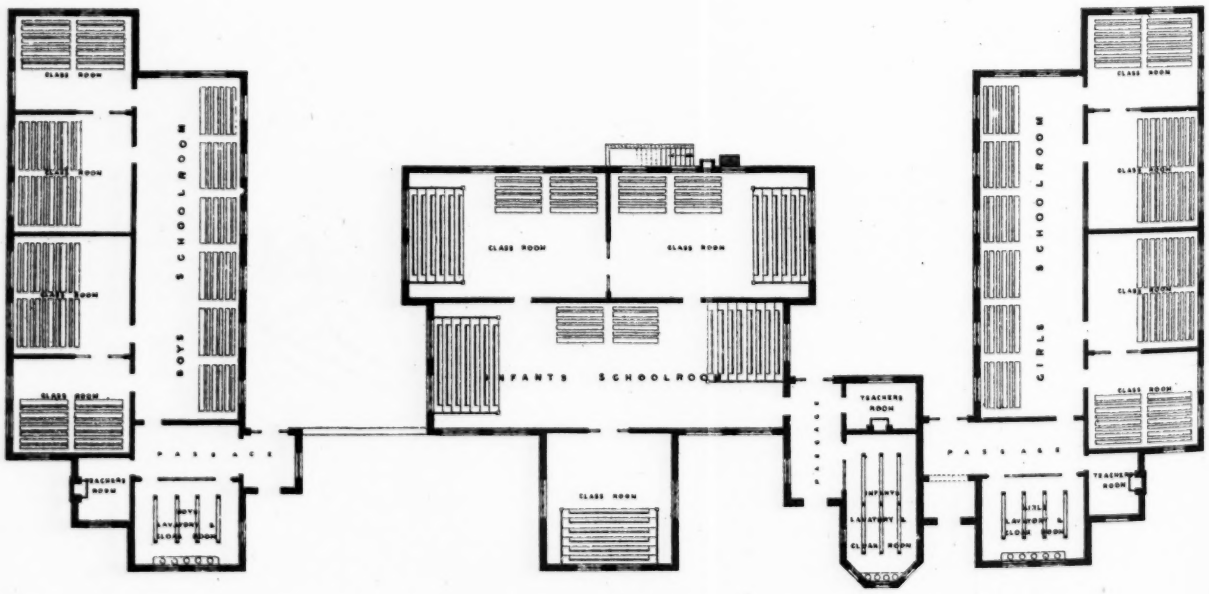
PROPOSED MONUMENT TO GARIBALDI, AT TURIN.—Prof. Edward Tabacchi, Sculptor.

Leamington School Board
Leicester Street Schools



GROUND PLAN

Leamington School Board
Shrubland Street Schools



GROUND PLAN

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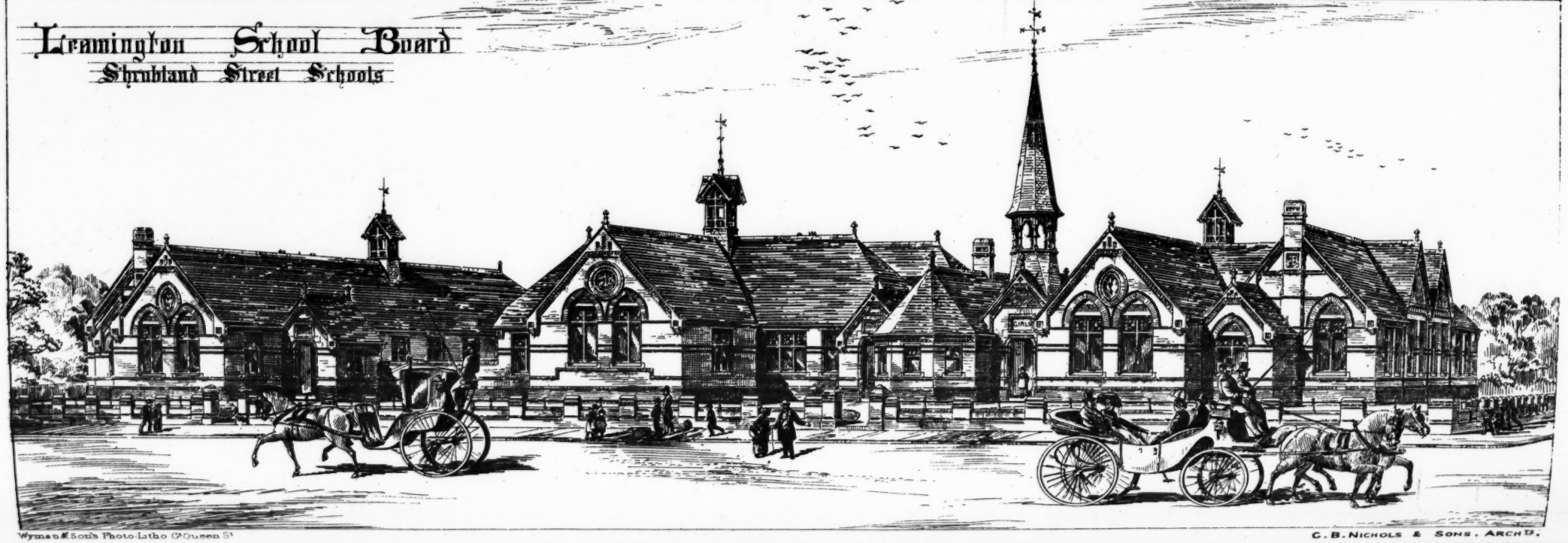
Leamington School Board
Leicester Street Schools

Leamington School Board
Shrubland Street Schools



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C. B. NICHOLS & SONS, ARCH.TS.

C. B. NICHOLS & SONS, ARCH'D.

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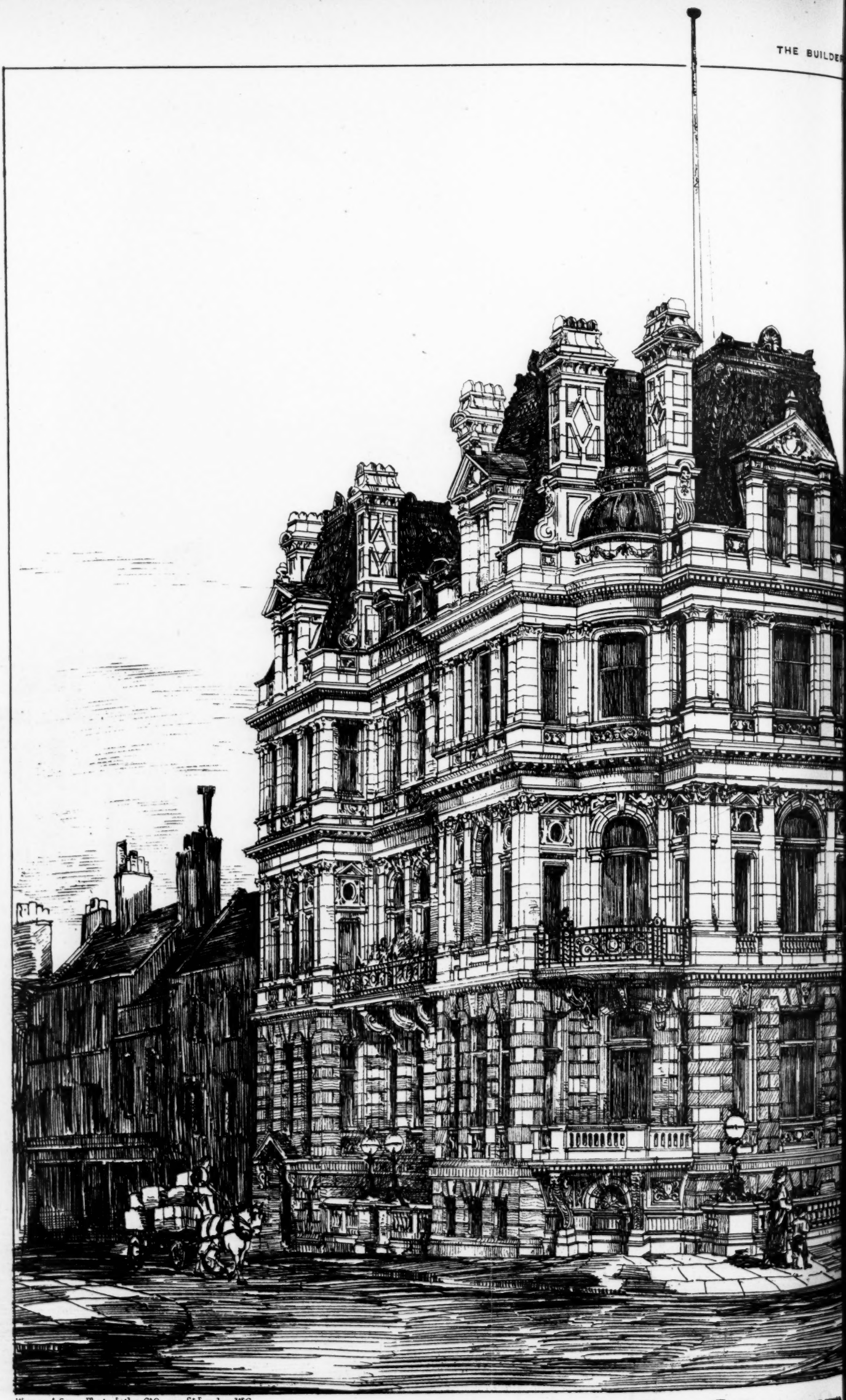

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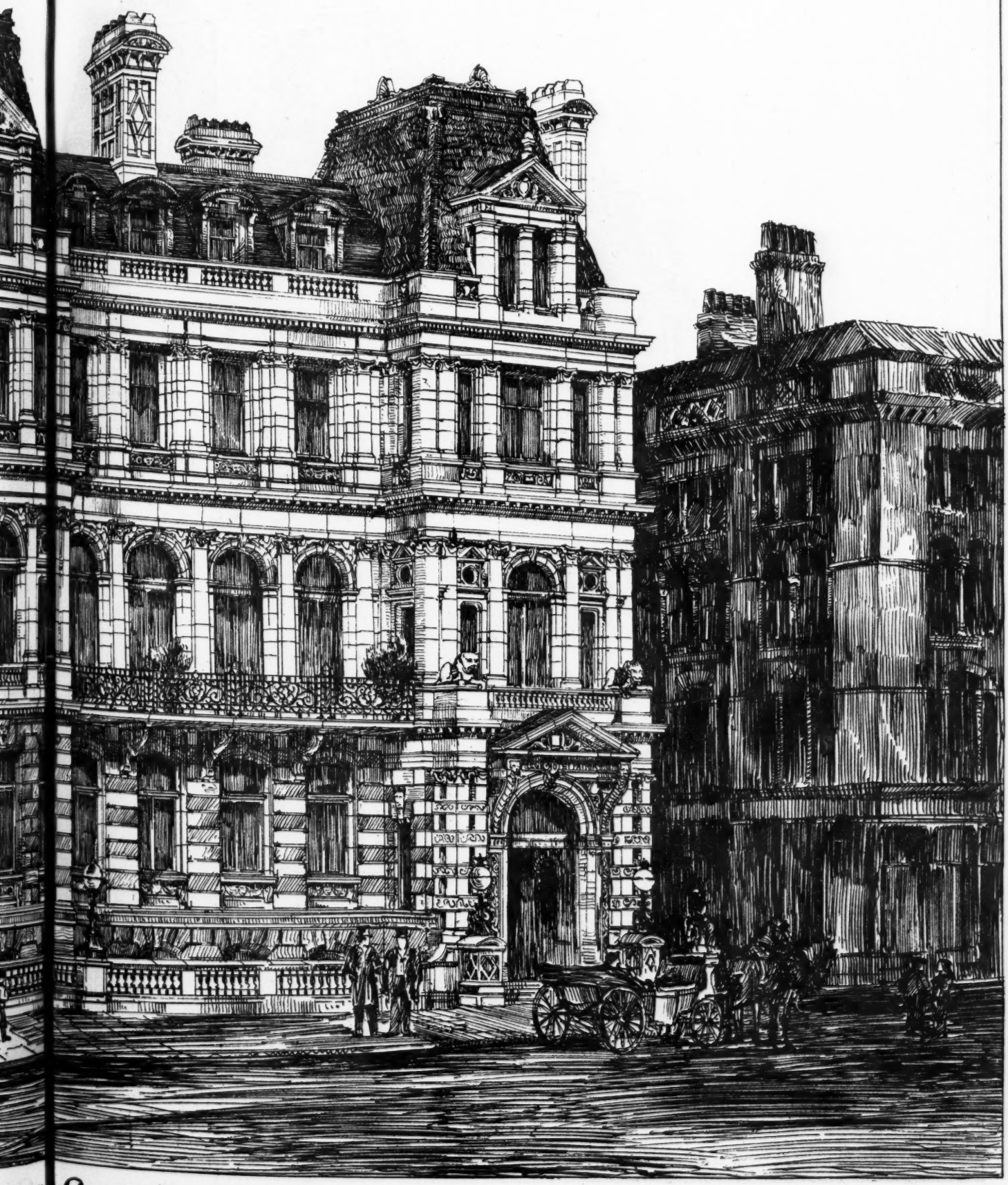
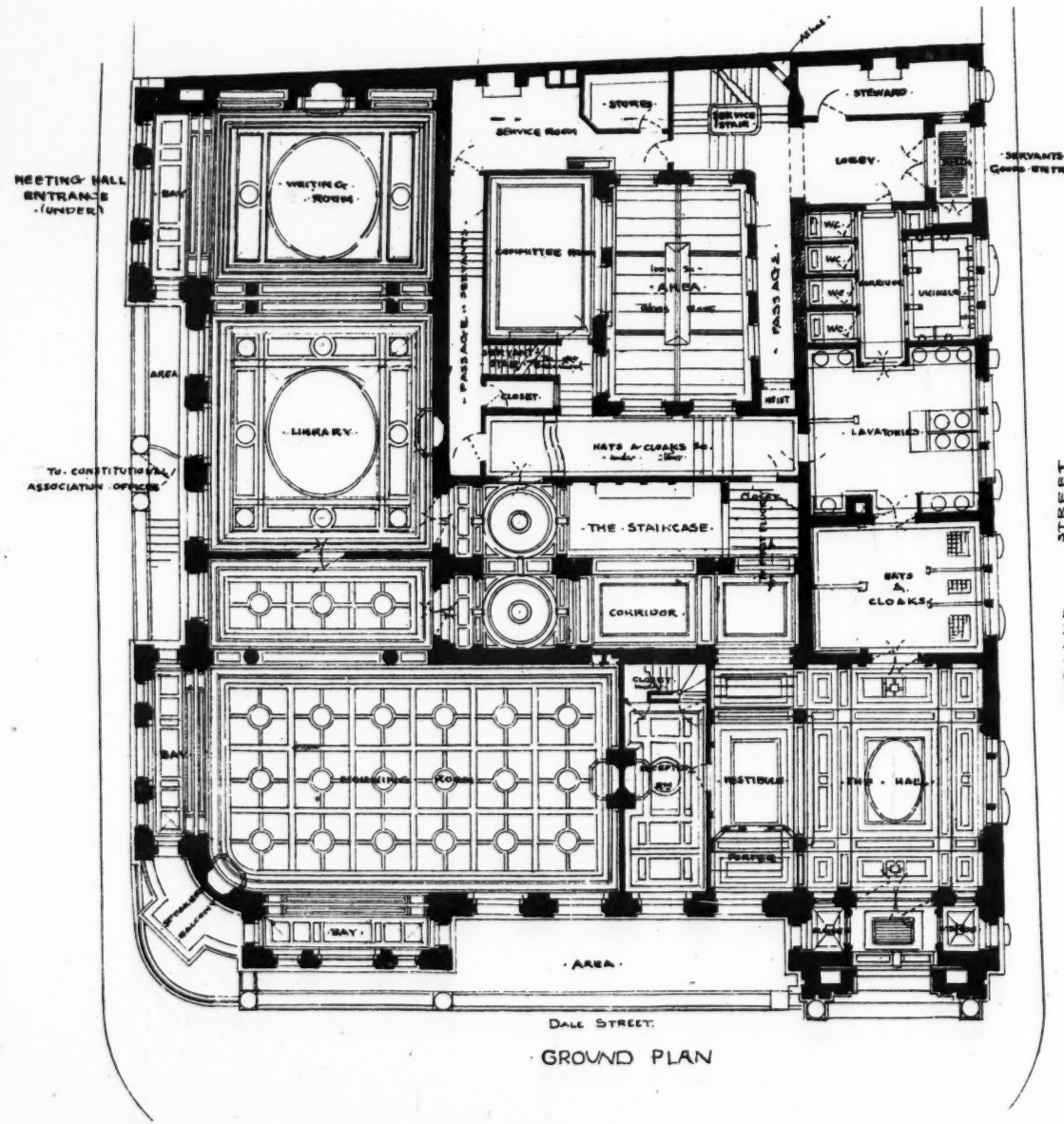
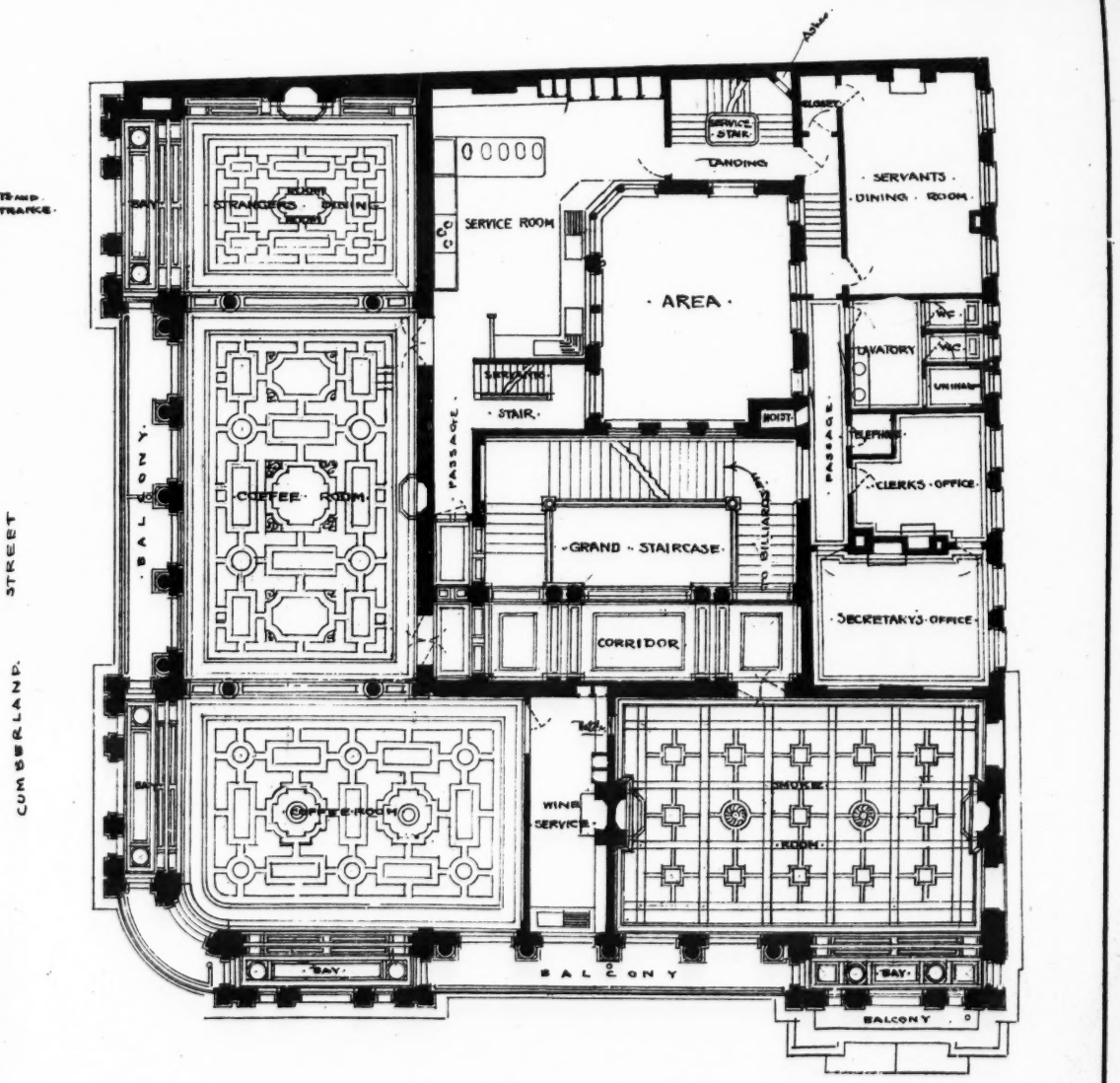


VATE CLUB · LIVERPOOL.

Messrs F & G. Holme. Architects
8. Westminster Chambers. Liverpool.





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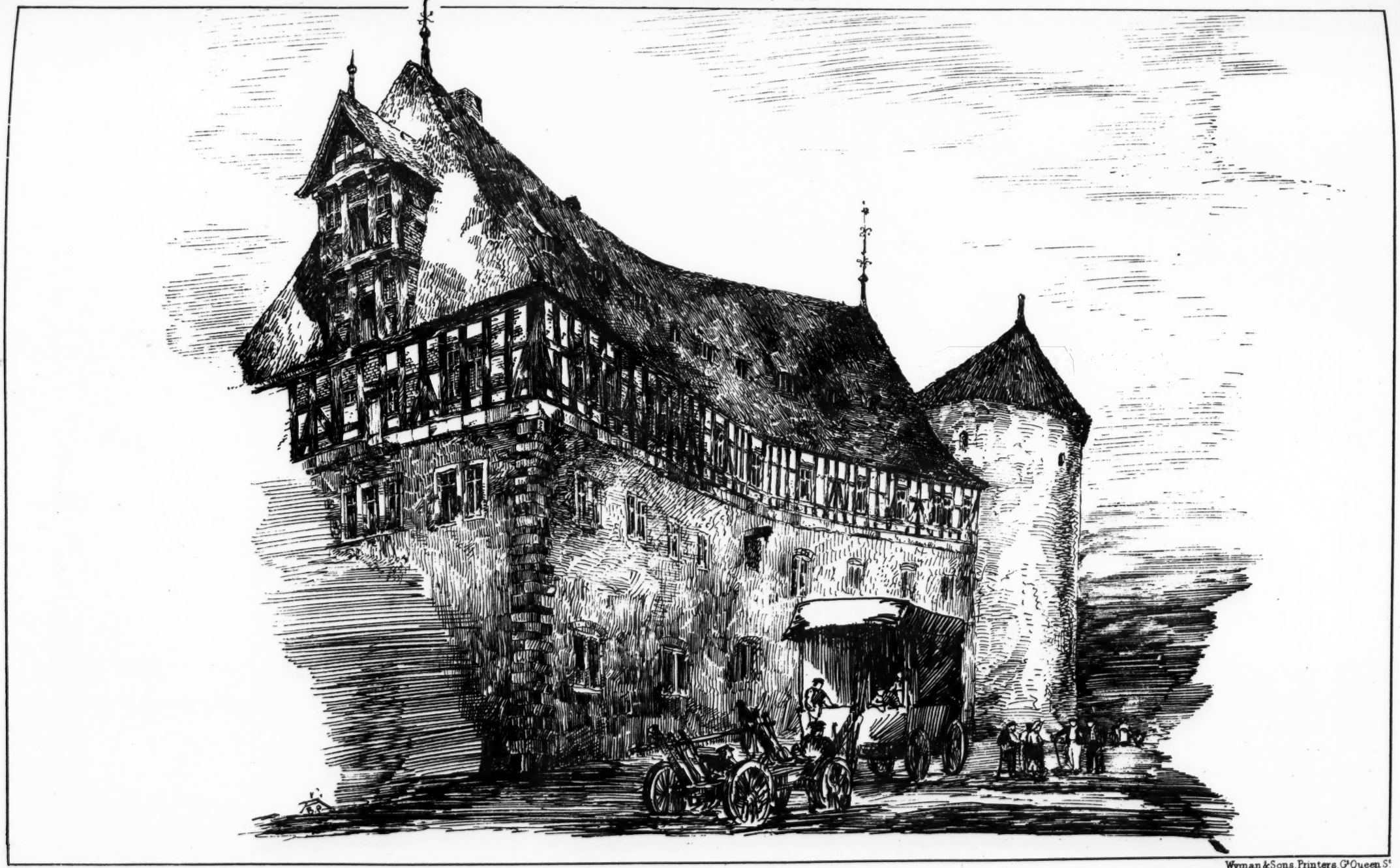
C^t Queen S^t London, W.C.

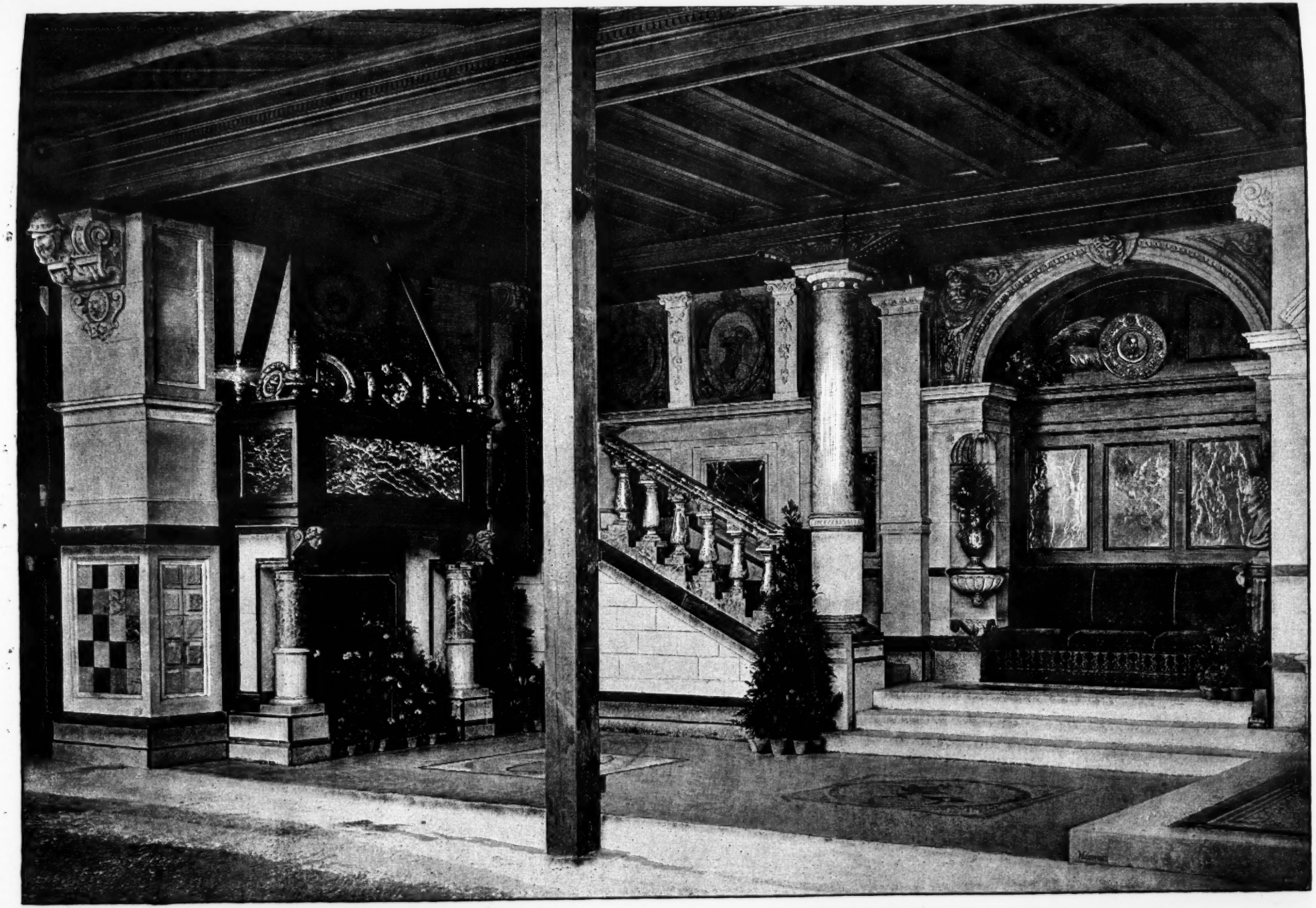
THE CONSERVATIVE CLUB, LIVERPOOL.——MESSRS. F. & G. HOLME, ARCHITECTS.



C.F.Kell, Photo-Litho. Castle St Holborn.

Wyman & Sons, Printers, Gt Queen St

A BARRACK STORE AT HANOVER.



VESTIBULE IN THE SWISS EXHIBITION, ZURICH, 1883.——HERR A. KOCH, ARCHITECT.

A BARRACK STORE AT HANOVER.

THIS picturesque old building, now used as a military store, is built of rubble masonry, grey in tone, with an upper story of black half-timbering filled in with red brickwork, and a steep roof covered with pan-tiles. There is almost an entire absence of those architectural features by which we are accustomed to determine the style of a building; in the gabled dormer alone on the return end (not a front) are any mouldings to be seen, and these naturally are on the under sides of the corbelled beams, the corbels themselves being "shaped." The slightly projecting stone course that supports the upper story has a rounded moulding on its lower edge, but too simple to be distinctive.

The architect or builder had a large and massive building to construct, and has been content to do it (shall we say design it?) without the slightest attempt at architecture, as we now understand the term, his only object being to build as good a store as he could with the materials, and the only knowledge he then needed was how to meet its requirements and purposes.

He seems to have had no acquaintance whatever with the styles of bygone ages and peoples (we do not recollect the existence of any Roman work in Hanover). In all probability he would have failed despicably to answer even the few and simple questions on such matters put to candidates for tests of professional ability nowadays.

He has plunged into no complicated grouping to hide and atone for the broken line of his front; he has not even brought his roof down against the old tower, which already encumbered the site when he began work four centuries ago, but has left the old fellow to tell his own tale uninterrupted and make a finish to that end of the building.

THE MEMBERS' SOIRÉE, ARCHITECTURAL ASSOCIATION.

A GROTESQUELY illustrated programme, designed by Mr. A. Beresford Pite, gave warning last Friday that the members of the Architectural Association would, in accordance with what has become an established custom, make their annual *soirée* the occasion of a dramatic entertainment. "MacTout" was the title of a species of extravaganza,—partly a travestie on "Macbeth,"—which had been composed expressly for the occasion, and the new Town-hall at Westminster was the place of entertainment. Members began to arrive at half-past seven, and the body of the hall was soon filled,—some gentlemen finding seats in the gallery. After a short interval had been occupied in conversation, refreshment, and smoking, the president, Mr. Cole A. Adams, and the honorary secretaries, Messrs. W. H. Atkin Berry and Herbert D. Appleton, made their appearance upon the platform. A sort of comic business meeting then took place: "minutes" were read, and some amusing sham nominations for membership were announced, amongst which were those of Sir Edmund Beckett, "on the completion of the repairs at St. Albans; proposed by the Clerk of Works"; and Messrs. J. P. Seddon and E. W. Godwin, who were said to have been proposed by Messrs. Aston Webb and E. Ingress Bell. The prologue to the "play" was then recited in verse by the President and Secretaries, after which the dramatic business commenced.

A large placard suspended to the wall, announced, "Scene I.—AN ELIGIBLE BUILDING SITE." Three Witches, impersonated by Messrs. A. Young, E. J. Tarver, and Shepherd, then entered. The question, "When shall we three meet again?" was met by the answer, "When the Competition's won"; in which the key-note of the principal theme for satire was struck. The object of the witches is to waylay *MacTout*, a London architect, who is desirous of winning the Admiralty and War Offices Competition. Mr. J. Alfred Gotch, as *MacTout*, in a dress which was a compromise between that of *Macbeth* and a modern Englishman, then made his appearance. In the course of a humorous soliloquy, he informed the audience that he had a set of plans ready to be submitted in competition, and then added,—

"Although 'tis true they're Norman Shaw's design,
My name is in the corner,—so they're mine."

The witches, however, warn him of the approach of *Bunkum*, an American architect, whose design is destined to win, advising him to steal *Bunkum's* drawings and send them in as his own. At this point Mr. G. H. Blagrove entered as *Bunkum*, in a dress that seemed all stars and stripes, and carrying the coveted roll of drawings under his arm. Having made the acquaintance of *MacTout*, who informs him that he has long wished for "a handle to his name," both call upon the witches to tell them something of the future. The witches respond by "all hailing" *MacTout* as the predestined recipient of all the honours of the Institute and the Royal Academy; but a position of eminence is not to be attained without some sacrifice:—

"Henceforth, MacTout, cast aside
Quantities, and all beside,
That's consider'd mean and low,
For into the Institute you shall go."

Having heard this promise, *MacTout* hastens home, to prepare for the reception of *Bunkum*, whom he has invited to remain beneath his roof. The first scene closes as the witches hail *Bunkum* with fair promises, in the words, "Thou shalt get prizes, though thou yet hast none."

The second scene was announced by placard, as "THE 1ST FLOOR BACK, TIT BITS VILLA." Here Mr. Bulmer Booth, as *Mrs. MacTout*, in a gorgeous costume of crimson silk, entered, reading a letter, supposed to have been sent by her husband, to prepare her for the arrival of *Bunkum*. The letter informs the lady of the honours that have been foretold as in store for *MacTout*. After an amusing song, in which all the prospective titles, ranging from A.R.I.B.A. up to P.R.A., are enumerated, *Mrs. MacTout* arrives at the conclusion that her husband will certainly be knighted, an expectation which incites her to sing, "I shall be Lady MacTout, without doubt." *MacTout* enters here, and introduces *Bunkum*, who steadfastly refuses to part with the drawings from under his arm, in spite of the solicitations of the hostess, who wishes to take charge of them. Dinner is nearly ready, however, and the unsuspecting *Bunkum* is ushered out by *Mrs. MacTout* to prepare for the meal, where, as previously arranged, he is to be drugged with a soporific. *MacTout* is now left alone, and, while listening for the dinner-bell, his disordered imagination calls up the vision of a T-square, that seems to hover about, perpetually evading his grasp. "I see thee still," he exclaims,—

"In form as palpable as that with which I draw."

But he is summoned by the dinner-bell to the perpetration of his contemplated villany.

In the next scene, *Bunkum* appears in an advanced stage of intoxicatlon, but still clinging to his drawings, until, being primed with fresh liquor, he drops asleep, leaving them to the mercy of *MacTout* and his wife, who lose no time in appropriating them, after carrying the unconscious owner to bed.

The last scene, aunounced as "THE DUST-SHOOT,—HAMPSTEAD HEATH," was, perhaps, the most amusing of all. The three witches, gathered about the cauldron,—a galvanised iron "copper" mounted upon a tripod,—were seen cowering over the blaze of red fire which arose from it. Each hag contributes her share of ingredients to the pot, naming every one as she drops it into the fire. "Notice of a party wall," "Joist all covered with dry rot," "Mouse that rotted under floor," "Knob of brass from off a door," "Crushed hat from the Prince's Hall," were some among the "charms," whose announcement evoked hearty laughter from the audience. Mr. Tarver, as *First Witch*, then 'cooled it with an extras bill," after which the cauldron was removed to one side, as *MacTout* entered to demand knowledge of his fate. His request produced the "three apparitions," the first being the "Practical Man," impersonated by Mr. T. E. Pryce; the second, the "Æsthetical Man," by Mr. Cresswell; and the third, the "Sanitary Man," by Mr. Cranstone, who, with a revolving chimney-cowl upon his head, caused much amusement.

"Design with beauty,—when you find it pay:
To build in truth, you may do any day,"

is the advice tendered by the "Practical Man," and each apparition has a word of encouragement for *MacTout*. Elated by this, he now demands to know what will be the prevailing style of architecture in the future? This question serves to introduce the "Procession of Styles" in which Mr. Cox appeared as "Egyptian," Mr. St. Aubyn as "Greek," Mr. Gale as "Roman," Mr. Huish as "Moorish," Mr. Best as "Italian," Mr. Cranstone at "Gothic," and Mr. Selby as "Queen Anne," each appropriately attired, and carrying a pasteboard symbol of the style he represented. The styles then grouped themselves into a tableau, expressive of the eclecticism of the architecture of the future. *MacTout* here calls for his sketch-book, with the determination of mastering the details of a style comprising such varied elements. Here, however, he is interrupted by a news-boy, who is heard crying:—"Result of the Great Competition." The stratagem of *MacTout* in appropriating *Bunkum's* drawings has failed, for the sealed letter has been received by the judges unaltered. *Bunkum* is announced as the successful man, and the disappointed competitor lays himself down to die. *Bunkum* now enters, accompanied by *Mrs. MacTout*, whom he proposes to espouse at the registrar's office, when *MacTout* returns to life, and induces *Bunkum* to receive him as partner, threatening, should he refuse, to write to the *Times*, stating that he is unfit to carry out a work of such importance alone. All is now satisfactorily arranged, and *Mrs. MacTout* announces her intention to

"Give up the Grecian bend,
And on my own constructive lines depend."

At the conclusion of the piece, Professor Kerr made a short speech, in which he congratulated the performers upon the success of their efforts.

IMPROVED DWELLINGS FOR LABOURERS AND ARTISANS.

WE extract the following from a paper on this subject read by Mr. T. Chatfeild Clarke at the Surveyors' Institute on Monday evening last:—

In treating of that portion of the subject which may be directly called practical, viz., the character and the extent of the accommodation that has and should be provided, I would suggest two or three principles in new buildings that seem to me essential, though not always observed:—

1. It seems desirable to so construct the rooms that through ventilation from back to front should be possible, and that, as a cardinal point in the planning, the rooms be not laid side by side, but as front and back rooms.

2. That the staircase to the blocks or dwellings should be open to the air, and that each set of rooms should have its private door as if the staircase was the street, and that open galleries should be avoided as destructive of privacy.

3. That in every case where it is possible the arrangement of the closets should be on open galleries, or, at least, entered through a scullery or washhouse, with direct access to the outer air.

4. That the plan of lavatories and water-closets off the staircases is not one that should be extensively followed.

5. That a simple and inexpensive system of fireproof flooring should divide the floors throughout.

6. That, when at all possible, some play-yard or drying-ground should be attached to the buildings, and, if possible, washhouses for laundry purposes.

7. That, in planning the buildings, an effort should be made to enable some rooms to be let off as single rooms, with a power, however, of adding two or three together if needed.

8. To preserve, as far as possible, a cheerful and cottage style of dwelling, as opposed to dull and heavy blocks.

9. Care should be taken that all the sanitary and other appliances should be of the simplest, yet, at the same time, of the strongest character.

10. As a sanitary aid in the construction of such dwellings, that the walls and the ceilings be of the hardest material possible, and often able to be cleansed.

The application of these principles is not always easy, and specially as to the question of single rooms. It cannot be denied that much of the usefulness of this movement would be lost if the plan was largely resorted to of constructing and letting single rooms; but the cost of more than one room has been, practically, the greatest obstacle to the very poor occupying such dwellings, and after the remarkable evidence of Mr. Marchant Williams,

one of the inspectors of the schools for the London School Board, to the effect that, in the Finsbury Division, there are 10,490 families living in one room only, consisting of 41,044 persons, and that there are 17,210 families living in two rooms only, and consisting of 82,215 persons, calls for the most careful attention. Such facts as these make it gravely worth consideration whether it is not possible to design and execute at a cheaper rate than hitherto a class of dwellings having some sort of privacy in the sleeping relations, and yet much cheaper in execution than a system of divided rooms; and the idea has occurred to me that, supposing you extend somewhat the area of the common room, and have a series of partitions movable, either made to hinge or slide, by which you could form bed-closets, not going absolutely to the ceiling so as to interfere with a free circulation of air, but by a little intelligent contrivance on behalf of the designer to render possible a division of the sexes, and at the same time in the daytime to enable such partitions to be back against the walls.

It would be a mistake to consider that the progress in supplying improved dwellings for the industrial classes has either been few or small. It must be patent to all who know London that private enterprise has, in many parts of the metropolis, supplemented the work of societies and associations.

In Clerkenwell, Newington, the Kent-road, Newport Market, Tooley-street, opposite Reid's brewhouse, on the edge of Farringdon-street, and elsewhere, blocks of buildings have been erected, substantial in character, some of them showing good financial results, and affording healthy and comfortable homes for the better portion of the artisan classes; and when we come to inquire into the work of the various associations and societies, we must be hopeful that an effect appreciable and material both as to the health and comfort of the people has been attained.

Taking the reports of 1883, furnished by the societies, I find that the Metropolitan Association for Improving the Dwellings of the Working Classes, which was, in a measure, the pioneer in the movement, being its thirty-ninth report, are housing 5,984 persons, with a death-rate as low as 17·2 per 1,000, declaring a dividend of 5 per cent., and possessing a reserve fund of 15,000*l*., with a total capital account of over 250,000*l*. I am glad to report that this Association have it in contemplation to erect some sets of dwellings of one and two rooms only, to accommodate tenants of smaller means than their average as now built.

The Improved Industrial Dwellings Company report that with their works in hand they will house about 25,000 persons, having 4,814 dwellings, 140 shops and workshops, with a capital account of about 900,000*l*., and a rent-roll of 100,000*l*. per annum in round numbers, the sanitary condition of the dwellings receiving careful attention. This company also manages 153 improved dwellings, belonging to private persons and to another association.

The Artisans', Labourers', and General Dwellings Company, which developes estates in a somewhat different way, has a large work in hand. Considerable areas of land, like that at Shaftesbury Park, the Queen's Park, and Noel Park, are purchased, roads formed, and cottage dwellings erected capable of accommodating a single family, but the houses are wisely planned of greater and lesser size to meet the wants of different classes. This company, possessing over 4,000 houses, has a capital and liabilities of over a million and a quarter of money, is now proceeding to cover Noel Park at Hornsey, and has a present rent-roll of over 55,000*l*. per annum. Taking a low average of five persons to a house, the present population must be 20,000, with a large prospective increase.

The Peabody Fund are doing a large and beneficent work. Up to the end of 1883 they had provided for the dwelling of 18,009 persons in 4,359 separate dwellings, with 692 of one room each, 2,073 of two rooms, 1,521 of three rooms, and seventy-three of four rooms. They have expended 1,089,883*l*. 12s. 6d. on land and buildings, with a net gain on the year from rents and interests of 25,252*l*. 16s. 2d. The death-rate was 18·60 per 1,000, the birth-rate was high, and the infant mortality low. It is right to state that the average weekly earnings of the head of the family was 1*l*. 3s. 8d., and the average rent of each room, 2s. 1¼d., such rent including the free use of water, laundries, sculleries, and bath-rooms. Such a record does not pretend to exhaust in any way the accounts even of the associations in existence.

I have referred before to a block of buildings erected by the Fishmongers' Company in Walworth, which contains 255 rooms, including a few shops, in ten blocks of dwellings, and, taking an average of five to a family, probably containing 1,275 persons in residence. The peculiarity of this block is that the cottage system has to some extent been preserved, as the buildings are not high, consisting only of four stories, yards being preserved in the rear.

I have also to record an experiment made at the foot of Southwark Bridge to bring the homes of the working classes close to their daily vocations, and of which I accompany some drawings.

In another instance I have to record with pleasure an experiment made by some friends and myself, where, in Lever-street, City-road, a block of buildings has been erected, not unattended with fairly commercial results, where the plan is wisely adopted of a personal supervision of the dwellings by ladies, and a kindly communication kept up with the tenants, thus assisting in the idea so admirably maintained by Miss Octavia Hill and her band of workers.

I mention these few individual results to illustrate how possible it may be, in many neighbourhoods of London and elsewhere, to initial schemes which may have a good and beneficial tendency.

ARCHITECTURAL ASSOCIATION.

VISIT TO KENSINGTON COURT.

THE outing of the members of this Association last Saturday afternoon was to Kensington Court, this being the seventh visit this session. Kensington, or "Chenesitum" of the Domesday Book, is one of the most interesting suburbs of London. This neighbourhood is referred to by Swift in his ballad of "Duke and No Duke":—

"Back in the dark, by Brompton Park,
He turn'd up thro' the Gore,
So slunk to Camden House so high,
All in his coach and four."

Kensington has diffused its name so much of late years that it almost seems destined, as stated in an article in our contemporary *Punch* recently to swallow up the whole of London, and something more, in the course of a few years. It has always been a favourite place for the outdoor meetings of this Association, from the re-erection of its Church of St. Mary Abbotts, by Sir G. G. Scott, and the South Kensington Museum, in 1871, to the recent meeting at the Brompton Oratory, as described in our pages. The place visited on Saturday was, till lately, the site of the ill-fated Kensington House, the sale and demolition of which were described in the *Builder*, vol. xliii., pp. 107, 410. Opposite to Kensington Court is a milestone, which records that it is "1½ mile from London." The estate is entered by a road, 45 ft. wide, from High-street, and is to have seven houses facing the High-street, two of which are nearly completed. The first house is erected, from designs by Mr. J. J. Stevenson, by Messrs. Holland & Hannen, contractors. The second house is situated at the corner of the new roadway, and is erected from designs by Mr. T. Graham Jackson, M.A., architect. The members were received by Mr. J. T. Carr, the proprietor of the estate, and Mr. William McGill, the clerk of the works, who conducted them over the houses and explained the working drawings and details. Besides the seven houses fronting the High-street, the seventh of which is to be a new branch of the London and County Bank, there are to be seventy houses erected in Kensington Court, the plots for the same being 24 ft. frontages by 80 ft. deep. Thirteen of the houses are now approaching completion; they were commenced last year from designs by Mr. J. J. Stevenson, architect, and are being erected under his superintendence, and that of Mr. T. M. Rickman, who is surveyor to the estate. The design is in what is termed the modern Queen Anne style of architecture; and the contract has been undertaken by Mr. Henry Lovatt, builder, of Wolverhampton; Mr. Roberts being his general foreman of works. The houses are five stories high, and the elevations have red brick facings and terra-cotta dressings; the terra-cotta being supplied by Messrs. Gibbs & Canning, of Tamworth. Each house contains the usual reception-rooms, eight bedrooms, two dressing-rooms, bath-room, servants' hall and offices, and are to be finished with all the latest modern improvements. The sanitary and ventilating arrangements are being carried out under the superintendence of Mr. W. Yuill. Each house has also separate iron-pipe drains and fittings supplied by the North British Plumbing Company. Electric bells are being fitted throughout the houses by Mr. Julius Sax. The corridors, offices, and open courts in basement will be paved with Stewart's granolithic paving. The floors in the basement are to be paved with wooden blocks.

The cathedral tinted glass has been supplied by Messrs. T. and W. Farmiloe, of Westminster. Hydraulic lifts are to be provided to all the houses by the Hydraulic Power Company (Messrs. Errington & Woodall). Gas will be laid on to all the houses, and wires for electric lighting, and arrangements are being made for lighting the houses, if required, with the electric light. Parquetry floors are to be laid to halls, and marble mosaic paving to vestibules and entrance landings. The principal feature of the estate has to be mentioned, and this is no less than brick subways under the roads, 3 ft. 3 in. wide, by 5 ft. 6 in. average height, for the purpose of conveying the water and gas-pipes, electric wires, and hydraulic mains, &c. The main drain, which is immediately below the subway, has been carried out under the direct superintendence of the Kensington Vestry and their officers. The roads, subways, and sewers have all been constructed by Mr. Joseph Mears, of Hammersmith. Each house has two courts, an inner court and rear court, to supply a sufficiency of light to the several apartments. In reply to questions Mr. Carr said each house had cost about 3,500*l*., and the price asked was 8,000*l*. per house freehold, and the rentals were 400*l*. per annum each. The members lingered a long time in inspecting the several houses, going minutely over them from attics to subways, having assembled at three o'clock, and did not finally depart till six p.m., making a visit of over three hours.

A LOW-PRESSURE WATER-METER.

THE subject of water-meters being likely to become of special practical interest, we publish the drawing and description of one which has been designed by Mr. H. W. Pendred.

A bucket, B, moves up and down between two guide-rods, C C. Four guide-pieces, D, are secured to the buckets, and move on the rods. The upper ends of guides are secured in a cross-bar, as shown in drawing at E. At the centre is a valve-box, F, fitted with a common lifting-valve; if the supply, however, is one of much pressure, a double-beat equilibrium valve can be fitted. On the lower part of the valve-box a lever, G, works on a pivot, H. To this lever is attached a chain, J, which is also united to a rod, K. This rod bears against a valve. A rod, L, moves in a guide, as shown, and its lower end passes through a hole in lid or cover of bucket, and is bent sharply round. On this rod is a collar, M, which engages against curved end of lever, G.

At the back of the cross-bar is a wheel, N, moving on a stud, and a chain or cord is fixed to cover of bucket, and passing over wheel is united to a weight, O.

In the bottom of the bucket is a valve, P, with three guide-rods, R. The valve is balanced by a rod, S, which passes through cover of bucket, and up between forked end of lever, T, a collar fixed upon it rests on lever, as shown, and a weight at other end of T balances valve. The lower ends of guide-rods are fixed in lugs on a receiver, U, and a rest V, for weight O, is cast on U also.

A tumbler, or ratchet, W, is mounted on lever, G, and engages in the teeth of counter-wheel as shown. A weight, X, is also mounted on tail of G.

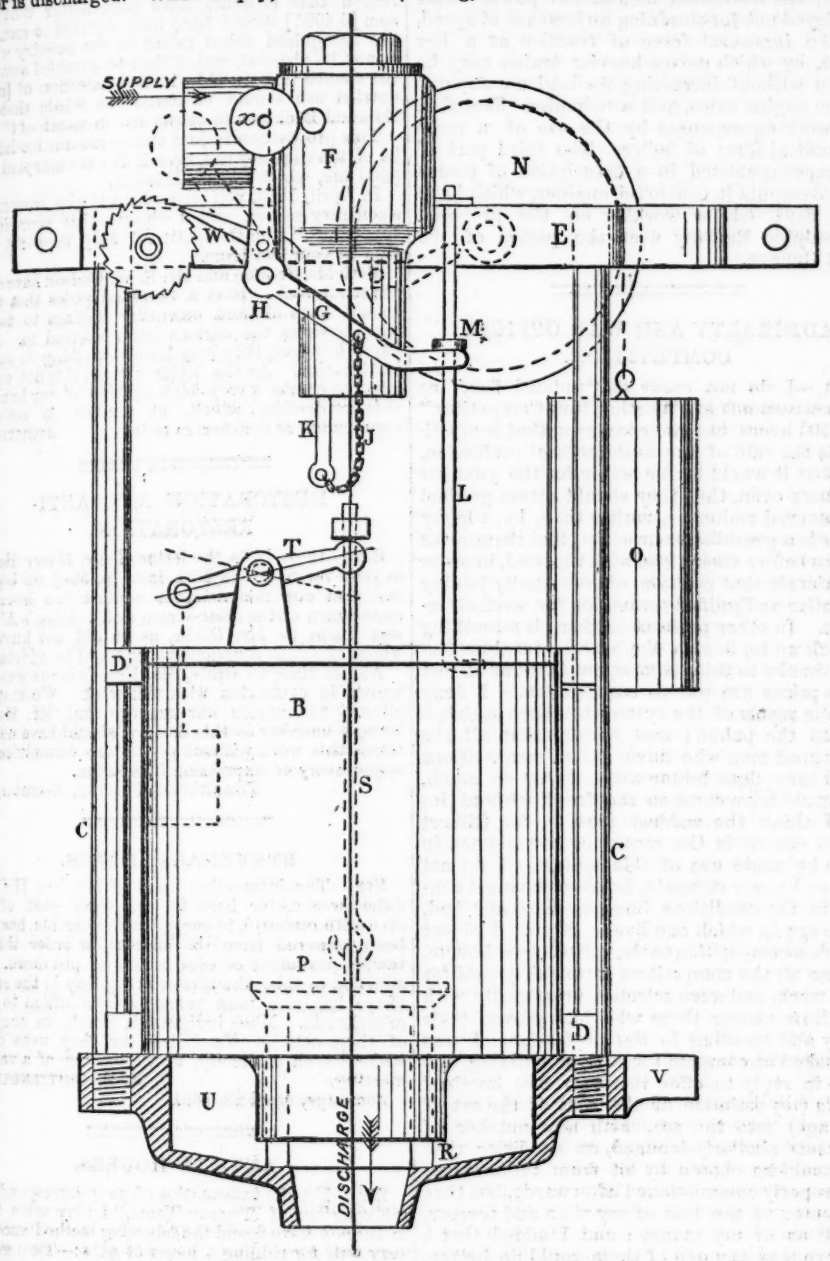
Action of Meter. — When meter is at rest, bucket is kept at top of its stroke by the weight O, and its valve is pressed home to its seat by its rod S, whose upper end rests against a projection on the back of the cross-bar E, and lever G is turned over to position shown in dotted lines. The supply valve is pushed up from its seat by rod K. If water be now turned on it will flow into the bucket until its weight exceeds that of O, when the former descends and draws up O. When the bucket descends a certain distance, its cover meets

bent end of rod L, and draws L down, and L in turn draws down lever G, thus allowing supply-valve to close, and turning weight X up on a dead centre as shown. The bucket continues to descend till its own valve is lifted by its guide-rods coming against receiver, as shown when water is discharged. When empty, the bucket is then pulled up by O; its own valve is closed by S lifting projection above described, and cover of bucket meeting curved end of lever G, lifts it so far as to throw weight X off its dead centre, and it falls over so far as to throw up supply-valve by means of the lever, chain, and lifting-rod. The water again fills up the bucket, which once more descends, and so the action continues; in fact, the water is weighed.

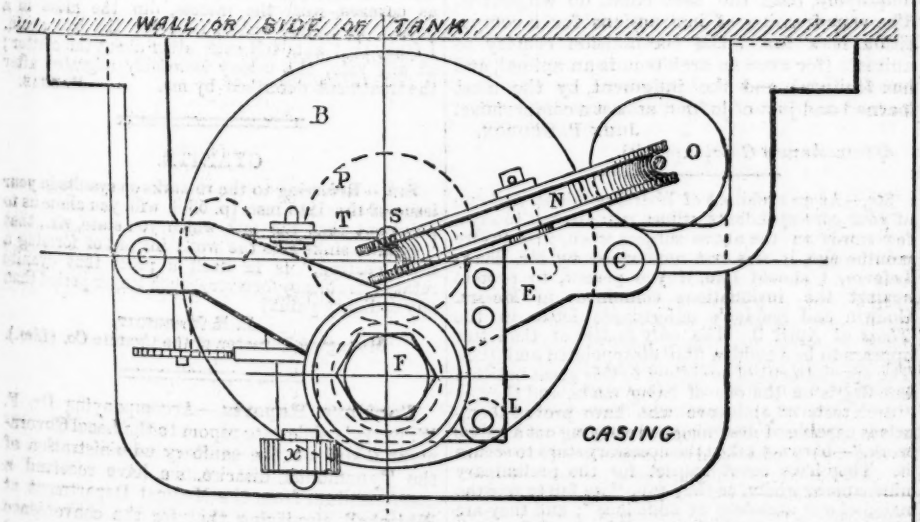
The meter can be set in or over a house-tank, or fitted in any required place, will work at the slowest speed, and needs little lubrication or attention. It can be locked up in a casing, and the counter wheel described will, if fitted with an index, register every bucket of water it delivers. No water, however small the quantity, can pass through unregistered, neither will it record more than does so.

All its parts are simple, easy of access for inspection, and not liable to get out of order.

H. W. P.



Pendred's Water-Meter.—Elevation.



Plan.

Scale.—One-third Full Size for Half-Gallon Bucket.

EDINBURGH.

AMONGST the ceremonials which graced the tercentenary celebration was the unveiling on Friday of the bronze group of Alexander and Bucephalus by Sir John Steell, which occupies an excellent site at the extreme east end of George-street. The group, as formerly stated in these pages, was an early work of the sculptor, and has been subscribed for by the public as a mark of the esteem in which the veteran sculptor is held by his countrymen. The Lord Provost stated that Steell might be considered the founder of sculpture in Scotland, and that he did not, like other Scottish sculptors, leave his native city so soon as his merits were appreciated: hence the public recognition of his merits which led to the work in question being subscribed for and added to the public monuments of the city. It is placed on a pedestal 9 ft. high, which bears on one side, "Modelled 1832,—cast in bronze 1883," and on the other "Presented to the city by the subscribers, 1884." The rearing horse is treated in a very spirited manner, and the youthful prince is cast after the true Greek model, but objection is taken to the drapery, which falls from the figure and gathers in thick folds under the horse's hind-quarters, as being rather suggestive of a sheet than a garment, and it is also thought by some that, although it would have been impossible to produce the reins with which the man is supposed to restrain the horse in marble, yet such might have been done in bronze with good effect. But there is an old proverb to the effect that "a gift horse should not be looked in the mouth," and this gift is really a pleasing addition to the adornment of the city. Another addition to the attractions of the city is the acquisition of Blackford Hill as a public park. This hill is the spot from which Sir Walter Scott makes Marmion view the city when he falls into raptures with the scene before him, and certainly a fairer scene it would be difficult to find; but, besides the view from the summit the hill has other points of attraction in itself. It has been wisely determined to leave it as far as possible in a state of nature, and only to make a few walks where necessary, and probably a drive along the base. The ground extends to 170 acres, and has been acquired from the proprietor, Colonel Trotter, at what is considered the moderate cost of 8,000*l*. The new suburban railway passes close by the north side of the hill, and a station is to be formed at Blackford Avenue, which will make the new park of easy access from all parts of the city.

THE RECENT EARTHQUAKE.

ON Tuesday morning, shortly after nine o'clock, a sharp earthquake shock was experienced with remarkable distinctness in Essex, Suffolk, and neighbouring counties, the shock being apparently most severe in Colchester. Serious injury was done to buildings in the town. Many chimneys were thrown down, and about 40 ft. of the stone spire of the Congregational Church in Lion Walk fell to the ground. The little parish of Abberton, situated about three miles from Colchester, bears witness to the intensity of the shock which affected the surface of the country. Not only were chimneys thrown down in all directions, but houses were unroofed, and gable walls cracked from top to base. The schoolhouse at Abberton is rendered useless, the roofs having been broken through by falling chimneys, and by the displacement of a large portion of the tiles. Roman Hill, the residence of Mr. Hall, in the vicinity of Abberton, has been extensively damaged, the foundations being severely shaken. At Langenhoe, a few miles further on, the most remarkable evidences of the shock are (according to the *Times*) to be seen. Farmhouses are wrecked, or partially so, all along the high road, while Langenhoe Church, an ancient structure of stone built in the Norman period, is shattered in a manner that would scarcely be credited except by personal observation. The massive tower was so shaken that the heavy masonry fell with destructive force on to the roof above the nave and chancel, utterly destroying the roof for a space of 10 feet square, and filling the interior of the edifice with a mass of *débris*. The rector, the Rev. Mr. Parkinson, has also suffered severely in the partial demolition of his residence, situate about 200 yards from the church. There were half a dozen chimney

stacks on the house, and these have all been overthrown or twisted on their foundations so as to necessitate their being removed. The walls have been cracked in every direction. Long fissures appear also in the grounds surrounding the house, particularly on the hand-rolled gravel walks. Mr. Parkinson says he felt the shock at 9.20 a.m. in a series of undulations accompanied by a twisting motion. The shocks, —for there were more than one,—lasted for about half a minute, the length of time occupied by the shock being particularly noticed by Mr. Parkinson. Fortunately none of the inmates of the house suffered any palpable injury, although they were much terrified by the alarming movement. Several farmhouses in the vicinity of the rectory have suffered severely by being partially unroofed and by the gables falling out. Altogether the damage in this parish amounts to several thousand pounds. In a southerly direction from Langenhoe lies Peldon, a much larger parish, and the spectacle here presented to the traveller from the high-road is of an extraordinary character. It is a literal fact that not a single dwelling or building of any description in Peldon has escaped injury in a greater or less degree. From the church on the hill down to the lowest cottier's dwelling destruction has been wrought on every hand, the seismic movement exerting itself in some cases in the displacement of masonry and brickwork in a most fantastic way.

The shock was experienced in Leicestershire, in Sussex, and in London, notably by some workmen engaged on the Victoria tower of the House of Lords. Mr. Deykin, the superintendent, who has been for ten years engaged in all the repairs to the pinnacles, towers, and spires of Westminster Palace, reports that, according to his calculation, the tower rocked 4 in. out of the perpendicular.

Mr. G. J. Symons, F.R.S., writes asking those who are able to do so to send information, with the view of having the facts investigated by scientific men. He observes that earthquake shocks sufficiently violent to injure buildings are so rare in the British Isles that he believes there is not a single observatory provided with a seismometer, or earthquake recorder.

IMPROVEMENTS IN LOCOMOTIVE ENGINES.

THIS was the subject of a paper read at the meeting of the Liverpool Engineering Society on the 9th inst., by Mr. John B. Fell, who commenced by pointing out that the locomotive engine has already been brought to such a state of perfection that there might appear to be no need of further improvements, and that these if made must rather relate to new developments of its powers, or new applications of them, than to the ordinary work in which it is at present employed. Therefore the improvements dealt with in the paper were those relating to (1) high speed locomotives; (2) increased economy in working expenses; (3) engines for working upon steep inclines or mountain railways. The present average maximum speed of the locomotive engine is from forty to forty-five miles an hour, upon which no advance has been made for many years, but during the last twelve months there has been a discussion in the engineering and scientific papers as to the practicability of increasing that speed on railways of 4 ft. 8½ in. gauge to an average maximum speed of sixty miles an hour, and to a speed of eighty miles an hour on railways with a 6-ft. or a 7-ft. gauge. The conclusion arrived at was that this could not be done with any existing type of locomotive, but that it might possibly be accomplished if certain conditions could be complied with, the most difficult of which is the providing of the necessary additional amount of boiler power, which could not be done with a boiler placed as at present over the engine and limited in width to the space between the driving-wheels. The only possible arrangement by which this object can be effected appears to be that of separating the boiler from the engine, giving it the place now occupied by the tender, and removing the water and coke to the carriage carrying the engine, by which means ample space could be provided for both engine and boiler, and there would be no difficulty in producing double the quantity of steam in the same time that is produced by the most powerful express engines now in existence, and consequently running at double the present speed upon a railway of a suitable gauge. The second part of the paper related to the application of the new arrangement of the parts of a locomotive to engines for working heavy goods and mineral traffic. In this case a much larger amount of adhesion has to be provided, the additional mechanical power being employed not for obtaining an increase of speed, but an increased force of traction at a low speed, by which means heavier trains may be drawn without increasing the load on any one of the engine axles, and a reduction effected in the working expenses by the use of a more economical form of boiler. The third part of the paper consisted in a description of recent improvements in centre rail engines, which have been designed for working on the proposed Transalpine Railway over the passes of the Mont Geneva.

ADMIRALTY AND WAR OFFICES COMPETITION.

SIR,—I do not sneer at "untried fish," as your correspondent "Another Non-Competitor" [p. 559] avers, but am convinced that competition is the ruin of the architectural profession, and that it would be far better for the younger members even, that they should attain gradual but assured eminence, rather than, by a lucky throw in a gambling transaction, find themselves famous before their time, with the need, in order to maintain that position, of continually joining in similar undignified scrambles for work afterwards. In other professions there is something to work up to, but in the architectural profession, thanks to this practice, but little, as almost all its prizes are put to competition. I deny that the result of the system has been satisfactory to the public; and believe that all the really good men who have gained competitions would have done better work, if not so much, and would have come to the front without it; and I think the saddest part in Sir Gilbert Scott's career is the record of the manner in which he made use of this system. I do not say that I never compete, because one must conform to the conditions, however hard and bad, of the age in which one lives. Nor do I object to such a competition as that of the Law Courts, because all the competitors were fairly paid for their work, and were selected, presumedly with care, from among those who had proved their ability and standing in the profession. I was once asked to compete for a large building, and wrote in reply to offer to throw two hundred pounds (my estimate of the cost of the set of drawings) into the sea, with any number of architects similarly inclined, on condition that one should be chosen by lot from the number, and properly commissioned afterwards, but that I objected to the loss of my time and temper, as well as of my money; and I added that I felt sure that any one of them could do better, with the advantage of communication with his employers, than the best could do without it. The very framing of instructions for a competition is a farce, the competition cruelty to animals (for even an architect is an animal, and has feelings), and the judgment, by the most learned and just of judges, at best a compromise.

JOHN P. SEDDON.

Queen Anne's Gate, April 21.

Sir,—As an architect of liberal opinions, and one of your correspondents whom you allowed to say a few words on the above subject when, just twelve months ago, it was first announced by Mr. Shaw-Lefevre, I should like, if you permit, to protest against the insinuations contained in Messrs. Godwin and Seddon's unfortunate letter in the *Times* of April 3. The only motive of the letter appears to be a sudden fit of disappointed ambition. The appointment of architect to this great national building is on the eve of being made, and they,—"architects of eminence who have proved themselves capable of designing and carrying out a public work,"—have not taken the necessary steps to secure it. They have scant respect for the preliminary nine, among whom, as they say, "we fail to find the name of one architect of eminence"; and they are disappointed accordingly in not having taken part in a race, which, for them,—first-rate architects,—would have been "a walk over."

Then surely the imputation of improper motive is most unjustifiable. Mr. Seddon and his friend may have more knowledge and information upon this matter than others, but it is impossible for any reasonable person to believe that honourable and independent men like Mr. Lefevre, Mr. Christian, and Mr. Hardwick, would lend themselves, for an instant, to preparing "a cleverly-arranged scheme" to prevent "any known first-rate architect being employed" as architect to the New War Offices. And I think that all who have read the conditions of this competition, and consider for a moment the circumstances of it, will answer the final appeal to reason in the letter with an emphatic negative.

The words are as follow:—"Does it not stand to reason that it would have been better that this sum [5,400*l.*] should have been devoted to securing the recognised ablest talent in the country which was at its disposal, rather than be gambled away on the chance that in this limited selection of [nine] untried fish should be found the whale that Sir Edmund Beckett and others are in search of!"

This proposition is just twelve months too late to be of the slightest use, even if it were accepted as a good one, which I think it is not.

In April, 1883, you allowed me to give reasons for a contrary course, and I observe that your correspondent "Non-Competitor" ably supports this view in your last issue.

Both Mr. Seddon and Mr. E. W. Godwin have done beautiful work. It is a thousand pities that they should have allowed unworthy feelings to tempt them to write the curious letter referred to. Perhaps, however, they may have something to say in justification. As the letter stands, it is not calculated to create a very high opinion of our honourable profession, which, at present, is scarcely appreciated as it deserves to be.

JUSTITIA.

RESTORATION AND ANTI-RESTORATION.

SIR,—In reply to the letter of Mr. Harry Hems, in your issue of the 19th inst. [p. 559], we beg to say that our remonstrance against the so-called restoration of the altar-screen at St. Alban's Abbey was made to Mr. Gibbs, as we did not know to whom else such a remonstrance could be addressed.

At the time we wrote, Mr. Hems's name was not known in connexion with this work. We may be allowed to express our surprise that Mr. Hems, being a member of this Society, should have undertaken this work without giving the committee an opportunity of expressing its opinion.

THACKERAY TURNER, Secretary.

STEVENAGE, HERTS.

SIR,—The interesting brass of Stephen Helland (who was rector here in the early part of the sixteenth century), in eucharistic vestments, has just been removed from the chancel, in order that a tawdry pavement of tiles might be put down. I addition to this, the screen of one bay in the south chapel has also been removed, in addition to the misericorde. Much indignation is felt on account of these acts of Vandalism, as they were done without even a faculty, or the calling of a vestry meeting.

S. B. CHITTENDEN.

Stevenage, April 22, 1884.

ANTS IN HOUSES.

SIR,—For the information of your correspondent, "Subscriber of Twenty Years," I may state that in India I have found the following method succeed very well for ridding a house of ants:—Tie a good-sized piece of meat (pluck or liver would do) to a bit of string; place it near the ants' nest; as soon as covered with the insects, dip the meat in a bucket of boiling water, then set the bait again. I fancy that ants tell each other about the matter; at any rate, the colony invariably migrated after the treatment described by me.

MADRAS.

CYANITE.

SIR,—Referring to the remarks on cyanite in your issue of the 12th inst. [p. 530], will you allow us to point out that the fact which you state, viz., that "cyanite sinks into the wood instead of forming a mere coating," is in itself a proof that cyanite retains its efficacy for a very much longer period than any ordinary paint?

E. E. MARRIOTT,
Managing Director of the Cyanite Co. (Lim.).

Sanitary Reports.—Accompanying Dr. F. W. Barry's elaborate report to the Local Government Board on the sanitary administration of the Tynemouth district, we have received a memorandum from the Medical Department at Whitehall, signifying that for the convenience of members of the medical profession and others, copies of certain of the Reports made to the Board by their Medical Inspectors are now placed on sale, and may be had from Messrs. Knight & Co., Fleet-street; Shaw & Sons, Fetter-lane; Hadden, Best, & Co., Strand; or P. S. King & Co., Westminster. The greater accessibility thus given to some of these reports will no doubt be an advantage to those who are studying the sanitary condition of the country.

CHURCH BUILDING NEWS.

Sutton.—St. Barnabas Church, Sutton, Surrey, although incomplete as regards its tower and north aisle, has just been consecrated. It is in a poor district of the ever-rapidly increasing so-called "town" of Sutton. The building of St. Barnabas Church has been helped by the Bishop of Rochester's Fund, and at present holds more than 500 people. The plan is that of a three-aisled church with the aisles continued along the chancel. Excepting for its eastern-most bay, the aisles are wide and have lofty arcades and large windows, rendering a clearstory unnecessary. The material is red local brick and Box Ground stone. Adjoining the church, at its western end, is a large building used as a Sunday school-room and for parish purposes. Near the church, on the already acquired site, will be the vicar's house. The church has temporary seats, pulpit, font, &c., arranged by the Committee (for the sake of economy!) without the advice of the architects. The pavements and glazing are, however, permanent. The architects of the buildings are Mr. R. Herbert Carpenter and Mr. B. Ingelow; the clerk of works Mr. Barnsby; and the contractor, Mr. Shilletoe. The cost has been about 4,000*l.* exclusive of fittings.

Newport (*Mon.*).—The Church of St. Woolos, Newport, one of the finest Norman structures in Wales, has recently received additions in the shape of brass altar-rails and an eagle lectern, which were manufactured by Messrs. Jones & Willis, of Birmingham and London.

Forest Gate (*Essex*).—The new Church of St. Saviour, Forest Gate, was consecrated by the Bishop of St. Albans on the 1st inst. It is situate at the angle of the Macdonald and Station roads, upon a site presented by Canon Carver. The style of architecture adopted is that of the Early English period; the material of the walls, both externally and internally, is red brick, Bath stone being freely used for the windows, doorways, arches, &c. The church consists of nave, chancel, north and south aisles, and transepts, and is arranged to seat 1,000 people. The roof from end to end of the church is wagon-vaulted, the line between nave and chancel being defined only by the lofty chancel arch which is carried up to the apex of the vault, and is concentric with the curves of the ribs of the roof. These ribs bear upon detached grey stone shafts, which rest upon sculptured corbels of intricate conventional foliage. The corbels are the gifts of various friends. On the south side of the chancel is a spacious organ-chamber; on the north side two vestries (clergy and choir) capable of being thrown into one when required for meetings, &c. Ample means of ingress and egress are provided by a south porch, a lobby at the west end of the north aisle, and a temporary porch occupying a portion of the site of the future tower and spire. The paving throughout is of tiles, and the reredos is formed of majolica tiling. The whole has been supplied and fixed by the Campbell Tile Company. The pulpit is of Caen stone, relieved with Cernish serpentine polished shafts; the capitals, cornices, &c., being elaborately carved. This, as well as the brass eagle lectern, are the gifts of Canon Carver, the donor of the site. The church has been carried out from the designs of Mr. Edwin Clare, F.R.I.B.A., the contractor being Mr. J. Morter. The carving has been executed by Mr. Allen; the heating and lighting by Messrs. Z. D. Berry & Sons. The total cost of the works, exclusive of special gifts, will be about 7,500*l.*

STAINED GLASS.

Dumfries.—Two windows, of three lights each, in the church of the Grey Friars, have been filled with stained glass by Messrs. Powell Brothers, of Leeds. One window is devoted to illustrations from the story of the Good Samaritan, and the other the Ascension of our Lord. Mrs. Barker, of St. Catherine's, was the donor.

Hyde (*near Manchester*).—A four-light west window has been presented to St. George's Church, Hyde, by Mrs. Horsfield, in memory of her husband and second son. The window contains the figures of St. John the Baptist, St. Paul, St. Peter, and Cornelius the Centurion. Two other windows have been presented to the church,—one by Mr. R. Hall, in memory of his wife; and the other by Mrs. Payne, in memory of her husband. The one presented by Mr. Hall contains the figure of St. Elizabeth and the Agnus Dei. The one given by Mrs. Payne contains the subject, "Christ Healing the Sick Man," and the emblem of St. Luke. These three windows were designed by Mr. T. W. Camm, and executed by Messrs. R. W. Winfield & Co., Birmingham.

Arbroath.—A three-light Munich stained-glass window has just been erected in St. Mary's Church, Arbroath, to the memory of the late Mrs. Durno, wife of the present incumbent. The subject is the "Raising of Lazarus," and the artists are Messrs. Mayer & Co.

PROVINCIAL NEWS.

Portsmouth.—The new episcopal residence for the Roman Catholic see of Portsmouth is now just completed, and Bishop Virtue and the priests attached to the adjacent cathedral have taken up their residence therein. The house is a handsome and substantial building in the French Gothic style of architecture, and is situate in the Edinburgh-road, overlooking the Victoria Park. It is built of deep-coloured red facing bricks; the dressings, with elaborate tracery and carvings, being of Ham Hill stone from the quarries of Staple & Hann, of Stoke, Ilminster, giving the buildiug a warm and pleasing effect. The roofs are covered with Broseley tiles of a dark tint, the flat over the bishop's reception-room and bays being formed of rolled iron joists, moulded Memel varnished beams and binders, covered with Portland cement concrete, and finished with Claridge's Patent Seysell Asphalte laid by the company's workmen. The wooden sashes and frames are of Indian teak, but the principal windows are glazed with plate glass in the stone mullions and jambs, the tracery being filled in with lead lights in tinted glass of geometrical patterns. The house contains upwards of thirty rooms, besides the offices. The four principal rooms are large and handsome, viz., the bishop's reception-room, the library, common hall, and dining-room, the floors of the two first being of the best wainscot oak in various widths; with this exception the finishings to all the principal rooms are in pitch-pine varnished. The ground and second floors are laid with pitch-pine block floors laid herring-bone-wise, and the first floor corridor with wainscot oak parquet flooring, wax-polished. The principal staircase is a very handsome work entirely of stone, the steps and landings being of Portland moulded nosings and beaded under the spandrels, the balustrading and heavily-moulded hand-rail being of Corsham Down stone, from Messrs. Randall & Saunders's quarries. There is on the first floor a small chapel, the roof being formed of moulded ribs and picked deal varnished match-boarding, the entrance-door Gothic tracery-head being very effective. The hot-water work and gas-fittings have been executed by Mr. F. Shalders, of Southampton. The work has been carried out in the space of thirteen months, by Mr. John Crook, builder, of York Building Works, Northam, from the designs of Mr. J. S. Hansom, architect, 27, Alfred-place, South Kensington. The clerk of the works was Mr. E. A. Harrison; the general foreman, Mr. W. McGowan; foreman of masons, Mr. J. Hockey; the carving and sculptural work, both externally and internally, being executed by Mr. W. H. Falmer, of Chelsea. The cost of the works has been about 7,500*l.* We gave a view of the residence in the *Builder* for June 9, 1883.

Braintree.—A Local Government Board Inquiry was held at Bocking on the 18th inst., by Mr. Stephen H. Terry, Assoc. M. Inst. C.E., one of the Board's Engineering Inspectors, respecting an application from the Braintree Union Rural Sanitary Authority for sanction to their borrowing 500*l.* for a scheme of sewerage, the plans for which have been prepared by Mr. Alfred B. Brady, A.M.I.C.E., of Maldon. The scheme was opposed by some of the ratepayers, on the ground that it did not comprise the whole of the village, and by others who lived at some distance from the portion proposed to be sewered, on the ground that though they would receive no benefit from the outlay, they would have to share the cost. A memorial, signed by a number of gentlemen, was presented to the Inspector, praying that a special drainage district might be formed, so as to exclude the outlying district. After hearing the evidence *pro* and *con.*, the Inspector walked over the locality, accompanied by some of those ratepayers who were present at the inquiry, and promised to report to the Local Government Board in due course.

Books.

Hints on Sanitary Law. By G. F. Chambers, Barrister-at-Law. London: Published for the National Health Society, by Allman & Son, 67, New Oxford-street.

MR. CHAMBERS is already well known as the author not only of an elaborate digest of the law relating to public health, but also of numerous legal and general handbooks. The task of compiling this little book could hardly have fallen to a more competent person. In a series of sixty-three numbered paragraphs contained in twenty-three sections, Mr. Chambers gives the inhabitant of London an epitome of the law in regard to sanitary matters of all kinds in the metropolis and the suburbs. We confess that we regret that this book is not just a trifle larger, and with a hard binding, for these pamphlet-like little volumes are apt to defeat their purpose by their very modesty. They are lost or consigned to waste-paper baskets, and are never forthcoming when required for reference. It will sufficiently show the character of this work if we extract one paragraph from it. No. 32, under Section xii., Nuisances, is as follows:—"Notice of a nuisance may be given to the Local Authority by (1) any person aggrieved thereby, or by any of the following persons: (2) the sanitary inspector, or any paid officer of the authority; (3) two or more inhabitant householders of the parish or place to which the notice relates; (4) the relieving officer; (5) any police officer of the district; or in case the premises be a common lodging-house, (6) any person who has been appointed an Inspector of Common Lodging-Houses." In the margin Mr. Chambers gives us the references to the several statutes, which will be found to be very numerous. As Mr. Chambers truly enough points out, while all England, except London, is governed by a proper code in the shape of the Public Health Act, 1875, London, as regards sanitary matters, is regulated by a number of fragmentary Acts. It is much therefore to be hoped that whenever the new Municipality for London comes into being, and into working order, one of its first tasks will be to formulate a sanitary code for the metropolis. For it would not only be a step to increase convenience of reference, but would place a branch of the law with which all London householders should be acquainted, in a plain and intelligible form.

BUILDING PATENT RECORD.*

APPLICATIONS FOR LETTERS PATENT.

April 12.—6,268, J. Halley, Milngavie, Roofing-plates in lieu of Slates or Tiles.—6,274, J. Hartill, Dudley, Window-blind Racks.—6,281, V. Brown and J. Marshall, Denton, Covering Roofs.—6,301, J. Bonner, Newcastle-on-Tyne, Chimney-top or Ventilator.—6,306, E. Page, Forest Gate, Gully Trap for Sinks.—6,333, W. Smeaton, London, Water-waste Preventers.

April 15.—6,355, W. H. Stephenson, Blackburn, Ventilating and Warming.—6,358, W. Smeaton, London, Water-waste Preventer.—6,362, A. C. Henderson, London, Metal Roofing Tiles. Com. by L. J. C. V. Corvin, Paris.—6,370, J. Carter, London, Window Sashes.—6,387, H. A. Dufrené, Paris, Stoves. Com. by A. Espéron, Issoire, France.—6,388, H. A. Dufrené, Paris, Parquet Flooring. Com. by F. E. Guerin, Paris.—6,394, E. Tomlinson, London, Fireplaces.—6,395, E. Tomlinson, London, Ventilation, &c.

April 16.—6,398, C. Harding and W. Huxley, Moseley-road, Greenhouses, &c.—6,400, H. James and G. Robinson, Sheffield, Blind Actions.—6,409, W. H. Kershaw, London, Roller Blinds.—6,428, E. Edwards, London, Burglar Alarm. Com. by H. Gibont, Paris.—6,430, M. Bowell, Crawley, Racks for Blinds.—6,431, R. Weaver, London, Water-closets.

April 17.—6,440, J. Everard, Sparkbrook, Window-sash fasteners. 6,448, J. T. B. Bennett, Aston, Sash-fasteners.—6,457, H. T. Gurner, London, Automatic Fastening for Double Doors, &c.—6,480, C. H. Adames, London, Fire-grates or Stoves.

SPECIFICATIONS ACCEPTED.†

April 18.—6, H. W. Frampton, Winchester, Hexagon Glazed Metal Roof and Upright Framing.—1,211, E. P. Purkiss, Birmingham, Window-blind Rollers.—4,635, W. J. E. Henley, and E. J. E. Henley, Anerley, Concrete Building.—4,725, W. R. Lake, London, Flushing, &c., Sewers. Com. by P. Burke, Salt Lake City, U.S.A.

* Compiled by Hart & Co., Patent Agents, 186, Fleet-street.

† Open to public inspection for two months from the dates named.

ABRIDGMENTS OF SPECIFICATIONS

Published during the week ending April 19, 1884.

3,775, T. W. Webber, Kellyville, Otley, Construction of Roofs. (Aug. 1, '83, price 6d.)

On the rafter, which has a flat top and is chamfered off at the sides, is placed a saddle-shaped strip of metal with a groove on each side to carry off the water. The panes of glass are laid on this strip, and another strip is placed above, and screws passing through both strips and between the edges of the panes secure all to the rafter.

4,259, R. Adams, London, Toothed Racks for Opening and Closing Fanlights, Windows, &c. (Sept. 4, '83, 6d.)

These racks are flexible, as a joint is made at every tooth. They can be actuated by a worm or by a pinion, and the rack can be rolled up in a receptacle therefor or allowed to hang down when it has passed the worm or pinion.

4,308, J. C. Bloomfield, London, Manufacture of Bricks, Tiles, Slabs, and Blocks of Building Material. (Sept. 7, '83, 2d.)

These are made of a mixture of gas tar, powdered chalk, and sand or burned ballast, which are melted together and run into moulds.

4,342, B. J. B. Mills, London, Domestic Heating Apparatus. Com. by V. Ducruix, Beaujou, France. (Sept. 11, '83, 6d.)

The fire-places or stoves are surrounded by a double casing divided into several compartments, through all of which air must pass to be heated.

4,641, G. G. MacWilliam, London, Water-closet Basins. (Sept. 29, '83, 6d.)

The basin and its trap are formed in one piece above the floor line. The trap rises from the bottom of the basin and its bend is above the top of the mouth of the trap, so that the upper edge of this mouth forms a dip, and the water that is retained in the basin will always cover the dip and form a seal. From the bend the trap passes down to the outlet, which is situated under the centre of the basin, and by this outlet the basin is connected directly to the soil-pipe.

5,834, G. Howard, Cricklewood, Fixing Flooring. (Dec. 21, '83, 4d.)

Dovetailed tongues are secured in lengths on the joists which engage in grooves formed in the under-sides of the flooring boards.

MEETINGS.

SATURDAY, APRIL 26.

Artists' Benevolent Fund.—Seventy-fifth Anniversary Dinner (Freemasons' Tavern), Sir Coutts Lindsay in the chair.

St. Paul's Ecclesiological Society.—(1) Visit to the Priory of St. Dominic, Maitland-road, Haverstock-hill. 2.40 p.m. (2) Visit to the Church of St. Augustine, Kilburn, under the guidance of Mr. J. L. Pearson, F.S.A. 4 p.m.

Royal Institution.—Mr. Hodder M. Westropp on "Recent Discoveries in Roman Archæology." (I.) The Colosseum. 3 p.m.

Birmingham Architectural Association.—Mr. W. Tonks on "Exhibitions and Museums."

MONDAY, APRIL 28.

Society of Arts.—Mr. J. Norman Lockyer on "Some New Optical Instruments and Arrangements." (Cantor Lecture.) 8 p.m.

TUESDAY, APRIL 29.

Art Union of London.—Annual Meeting and Prize Distribution: Adelphi Theatre, 12 noon.

Institute of British Carriage Manufacturers.—Mr. H. Julian on "Art applied to Coach Building." 7.30 p.m.

Institution of Civil Engineers.—Discussion on Mr. W. E. Rich's paper on Vertical and Horizontal Engines. 8 p.m.

Society of Arts (Foreign and Colonial Section).—Mr. W. Henry Penning on "The Transvaal Goldfields." 8 p.m.

WEDNESDAY, APRIL 30.

British Museum.—Mr. W. St. Chad Boscawen on "The Dawn of Civilisation in the Land and Cities of Nimrod." 4 p.m.

Society of Arts.—Mr. J. W. Willis-Bund on "New Legislation as to Freshwater Fisheries." 8 p.m.

Edinburgh Architectural Association.—Mr. Hippolyte J. Blanc on "Heating and Ventilating Appliances."

THURSDAY, MAY 1.

Society for the Encouragement of the Fine Arts.—Dr. J. S. Phené on "Art in America." 8 p.m.

Royal Archæological Institute.—(1) The Rev. J. Hirst on "The Religious Symbolism of the Unicorn." (2) Mr. J. F. Hodgetts on "The Scandinavian Element in the English People." (3) Mr. J. G. Waller on "Fourteenth and Fifteenth Century Brasses." 4 p.m.

Institution of Mechanical Engineers.—(1) M. Georges Marié, of Paris, on "The Consumption of Fuel in Locomotives." (2) M. Paul Decauville, of Paris, on "Portable Railways." (3) Mr. Michael Longridge on "The Moscrop Engine Recorder and the Knowles Supplementary Governor." 7.30 p.m.

Royal Institution.—(1) Annual Meeting of Members, 1.30 p.m. (2) Professor Dewar on "Flame and Oxidation." (II.) 3 p.m.

Chemical Society.—8 p.m.

FRIDAY, MAY 2.

Architectural Association.—Mr. A. Beresford Pite on "Cathedral Planning." 7.30 p.m.

Institution of Mechanical Engineers.—(1) Mr. A. Slater Savill on "The Automatic and Exhaust Steam Injector." (2) Mr. Robert Gordon on "Apparatus used for Testing Current-Meters at Torquay." (3) Mr. Edgar P. Rathbone on "The Francke 'Tina' or Vat Process for the Amalgamation of Silver Ores." 7.30 p.m.

Royal Institution.—Prof. J. W. Judd on "Krakatoa." 9 p.m.

SATURDAY, MAY 3.

Architectural Association.—Visit to the Central Technical College, South Kensington. 3 p.m.

Royal Institution.—Mr. Hodder M. Westropp on "Recent Discoveries in Roman Archæology." (II.)

Edinburgh Architectural Association.—Visit to Dalhousie Castle and Newbattle Abbey. (II.) The Roman Forum. 3 p.m.

Miscellanea.

British Archæological Association.—The tenth meeting of the session was held on the 16th inst., the chair being occupied by Mr. Thos. Morgan, F.S.A., who read a description, by Mr. J. Pierce, of the Roman Amphitheatre recently discovered in Paris. It is near the Rue Monge, not far from the Pantheon, in the slope of the hill towards the Jardin des Plantes. 20 ft. of earth have been removed from above the ruins, and some of the passages have been cleared out. There are several of the seats for spectators remaining, and many more it is expected will be met with. The masonry is of small squared stones. This is a remarkable discovery, which hitherto has not had much public attention directed to it. A discussion followed, in which several speakers referred to the probable existence of an amphitheatre in London, while the buried condition of St. Alban's Theatre was deplored. The Rev. S. M. Mayhew then concluded his paper on "The Antiquities of St. David's," which are to be visited during the coming congress. Special reference was made to the seriously dilapidated condition of the cathedral prior to its recent restoration by Dean Allen. The works have resulted in the security of the building and the discovery of many interesting details of the ancient work, which were described. A second paper was then read by Mr. W. de Gray Birch, F.S.A., in the absence of its author, Dr. Wake Smart, on the antiquities of Nursling, and of various Roman roads which passed through the district of the New Forest. The course of one across the Test river at Nursling was traced, and descriptions were given of the old castle at Birley Beacon, a British encampment, and of Tatchbury, where several Roman roads converge and the Test was crossed.

Progress of the Inner Circle Completion Railway.—The works for the completion of the Inner Circle Railway, between the Mansion House Station and the Tower, are fast advancing, and Mr. Walker, the contractor, expects to be able to take an engine from one end to the other in about a month from the present time. Workmen are now busily engaged in connecting the metals at the Mansion House station with the extension in progress in the direction of Cannon-street, where there is to be a new station, and one at King William-street. The construction of both stations is now going forward. The first-named station will be at the corner of Cannon-street and Dowgate-hill, with entrances in both streets, and two shops in Cannon-street are about to be taken down for the purposes of the station, and to make way for the Cannon-street entrance. A considerable portion of Cloak-lane,—from College-hill to Dowgate-hill,—is closed for public traffic during the progress of the works. The King William-street station is being constructed on the site of the Weigh House Chapel, and there will be an entrance to this station in Fish Street-hill, as well as in King William-street. That part of the line which runs under Cannon-street, between the corner of Dowgate-hill and King William-street, is already completed, as well as some other sections, including the whole length between the east end of Great Tower-street and the company's station at Tower-hill.

The Need of Public Baths in America.—At a time when the condition of the tenement-house classes is attracting so much attention, and philanthropic persons are directing their efforts to the character of the buildings in which these people live, it occurred to us that a description and history of the public baths and wash-houses in England might direct attention to the fact that such facilities for personal cleanliness are lacking in this great city during eight months of the year, when our climate renders our floating swimming-baths of no use. If, by calling attention to what has been done elsewhere, we can influence the establishment of public baths in our American cities where bathing may be done in winter as well as summer, it will, in our judgment, be another practical step in the movement to improve the physical surroundings of our working-classes.—*New York Sanitary Engineer.*

Sanitary Condition of Clerkenwell.—The present sanitary disorganisation of the metropolis places almost insuperable difficulties in the way of obtaining trustworthy mortality statistics for the various sanitary districts into which London is divided. Sir Charles Dilke recently referred in the House of Commons to the overcrowing which he had found to exist in insanitary and dilapidated dwellings in Clerkenwell. As a rejoinder to this statement the local Vestry instructed their clerk to forward to Sir Charles Dilke copies of the reports of their medical officer of health for the past six months. These reports are stated to show that the rate of mortality in Clerkenwell compared favourably with that in other parishes in the metropolis, and within the metropolitan area generally. Now, it is a fact that the parish of Clerkenwell, which forms one of the metropolitan sanitary districts, contains no public institution,—no workhouse, and no hospital. Most of the sick poor from Clerkenwell, therefore, whether they die in workhouses or in hospitals, die outside the parish. We cannot say that we have seen the special reports, of which copies were sent to Sir Charles Dilke, but we have never seen a health report for Clerkenwell in which any serious attempt was made to bring into account the deaths of Clerkenwell residents who die outside the parish. It is needless to say that without such correction the mortality statistics of this parish are worse than useless,—they are misleading. The mean recorded death-rate in Clerkenwell during the three years 1880-81-82 was, it is true, only 18·6 per 1,000. Assuming, however, that Clerkenwell contributes its due share (according to population) of the workhouse deaths in the Holborn Union, which there is no reason to doubt, this would raise the death-rate of the parish to 22·0 per 1,000. Moreover, on the assumption that Clerkenwell also contributes its due quota to the deaths in the metropolitan hospitals, another addition of 2·0 must be made to the death-rate, raising the corrected death-rate for the parish to 24·0 per 1,000. Now, as the mean death-rate for the whole of London in the three years 1880-81-82 did not exceed 21·4 per 1,000, the apparent anomaly of the co-existence of the over-crowding in insanitary dwellings observed by Sir Charles Dilke, with a remarkably low death-rate, is susceptible of explanation.—*Lancet.*

Fallen Greatness.—The case of the *Great Eastern*, destined at one time to achieve great things, is an example of how low greatness can fall. We learn that arrangements are in progress to begin work upon this vessel very shortly to fit her for a career as a coal-hulk in Gibraltar Bay. Permission for her anchorage has been obtained from the Colonial Office. The project is viewed also with favour by the Admiralty, as the *Great Eastern* will effect a great improvement in the bay by dispensing with the multitude of small coal-hulks which now encumber the harbour. The company having the matter in hand have carefully calculated the suitability of this giant of naval architecture for a coal-hulk. Her paddle engines and boilers are to be removed, and she is to have numerous side-ports added to those already existing, by which the coal will be received for storage purposes. The coal from these ports will, by its own gravitation, run into a variety of receptacles, some well above the water-line, others below. The vessel is to have powerful hydraulic cranes on the upper deck, whereby the steam colliers from Cardiff and Newcastle bringing the coal will be very quickly discharged, thus saving greatly in cost on the existing system as practised at Gibraltar. The coal, once on board, will be shot down under the bunker receptacles on board the Atlantic and other large steamers taking in their coal alongside. A further advantage is that the *Great Eastern* will give such shelter that coaling from her in the bay will, it is expected, be able to proceed in weather when it is quite impracticable with smaller hulks. It is considered that these various advantages will at length open out for this vessel a trade in which her size will be a positive recommendation and economy, in lieu of, as hitherto, an impediment to success. The vessel will be fitted with the electric light, so as to be ready to take in coal and deliver it at night as as well as by day.—*Iron.*

New Post Office, Knutsford.—The designs of Mr. Wm. Owen, A.R.I.B.A., 134, Deansgate, Manchester, have been selected in open competition for new Post-office buildings to be erected at Knutsford, Cheshire.

Mosaic Work.—Messrs. Burke & Co., of Newman-street, Oxford-street, have just carried out two important works in a remarkably short space of time. The first was a mosaic pavement at the head office of the National Provincial Bank of England. Worn-down Portland stone landings had to be worked off, and a mosaic pavement, covering an area of from between sixty and seventy yards laid thereon between the Thursday night preceding Good Friday and the Wednesday morning following, no work being allowed between the hours of 9 a.m. and 4 p.m. on the Saturday, between midnight of the same day and 6 a.m. Monday morning, nor between 9 a.m. and 5 p.m. on Tuesday. The time occupied, therefore, on the work *in situ*, allowing for meal times, was sixty hours, equal to six working days, whereof half was taken up in working down the stone. The architect, Mr. Charles R. Gribble, has expressed himself well pleased with the rapidity of the work. The second job was at the Turkish Baths, Jermyn-street, and had to be carried on in a temperature of 135°. The old marble pavement was removed, concrete put in, and a mosaic pavement laid between Thursday evening and Tuesday morning. We are informed that Messrs. Burke & Co. are enabled to lay mosaic floors thus rapidly in consequence of having the cubes or tesseræ faced by machinery before being gummed on to the brown paper in the usual way, thereby saving the time previously required to sand down the irregular and rough surfaces. This firm is carrying out a large order for mosaic paving at the Technical Institute, South Kensington, under Mr. Waterhouse, A.R.A. We may also mention that they a short time ago laid a mosaic pavement at Marlborough House for H.R.H. the Prince of Wales, under Mr. John Taylor, architect.

Assyrian Antiquities.—By permission of the Trustees of the British Museum, and under the patronage of Major-Gen. Sir Henry Rawlinson, K.C.B., the Rev. George Rawlinson, Camden Professor of Ancient History in the University of Oxford, and author of the well-known work on "Ancient Monarchies," and of Professor Fergusson and Mr. Hormuzd Rassam, the Assyrian explorer, Mr. W. St. Chad Boscawen will commence, on Wednesday, April 30, a series of six afternoon lectures on the "History, Literature, and Archæology of the ancient Empires of Assyria and Babylonia." The subjects to be treated of in the series are:—1. The Dawn of Civilisation in the Land and Cities of Nimrod. 2. A Chaldean Temple: its History, Architecture, and Ritual. 3. Traditions of Eden in Legend and Art. 4. The Bible and the Monuments. 5. Nineveh and its Palaces in the Golden Age of Assyria. 6. The Influence of Assyria on the Culture of Surrounding Nations. The lectures will commence each afternoon at four o'clock, in the galleries of the British Museum, and will be illustrated by the antiquities there exhibited, and by maps and plans specially prepared. Tickets for the course or single lectures may be obtained from Messrs. Williams & Norgate, 14, Henrietta-street, Covent-garden; or from W. B. Cutler, 36, Great Russell-street, Bloomsbury.

Telegraph Wires.—Mr. E. Gregson Banner has patented an improved method of providing for the laying of telegraph and other wires, and gas-pipes, &c., with a view to combine economy with accessibility, by laying them within a concrete kerb made in upper and under blocks having a hollow channel between them, the upper blocks to be removable by lifting rings. Similar blocks to be arranged to carry the wires across a street where necessary, the blocks in this case to form a course level with the roadway, or forming part of a crossing. The idea seems worth entertaining.

Wood Block Flooring.—An improvement has been made in the method of laying wood block flooring, by Messrs. Geary & Walker, of 7, John Dalton-street, Manchester. In consists in the securing of the wood blocks to their cement, asphalte, or other foundation, by means of metal keys, which prevent the blocks becoming loose. The improvement has been patented, and the flooring will be known as "Geary's patent 'Premier' system of wood block flooring."

Birmingham Master Builders' Association.—At a meeting of the committee, held on Monday last, at the Grand Hotel, Mr. Wm. Sapcote in the chair, Mr. Ernest J. Bigwood, of the firm of Edwards, Son, & Bigwood, Templerow West, was elected secretary to the Association.

New Public Hall at Peckham.—A spacious public hall which has for some time past been in course of erection at Peckham is now nearly completed. Within the last few days the building has been covered in, and it is expected it will be finished and formally opened in the course of a month. It is situated a short distance to the rear of the houses and shops on the south side of Rye-lane, and will be approached from that thoroughfare by a covered way 12 ft. in width. The ground-floor contains several apartments, the principal one being 45 ft. long and 26 ft. wide, and intended to be used as a newsroom. On the same floor there are also three smaller rooms, intended to serve as committee-rooms. A spacious stone staircase leads up to the first floor, which contains the public hall, the principal apartment in the building. It occupies nearly the whole area of the edifice, being 90 ft. in length, 42 ft. in width, and 22 ft. in height, and is estimated to seat an audience of about 1,200 persons. At one end there will be a platform extending the entire width of the hall, and arranged for orchestral purposes. The second floor contains another large room, which it is expected will be appropriated as an art gallery. It is well adapted for this purpose, being amply lighted from the top. Mr. J. Wilkins, of Peckham, is the architect of the hall, which has been erected by and for Mr. W. Dowton, the owner, under the superintendence of his own manager.

New Industrial Dwellings at Camberwell.—Amongst the large number of shops and other new premises which are now in course of erection in Church-street, Camberwell, consequent upon the widening of that thoroughfare by the Metropolitan Board of Works, Messrs. Colls & Sons, builders and contractors, have just taken on lease a plot of the vacant land on the east side of the road, on which they have commenced the erection of several blocks of industrial dwellings for artisans, which, it is stated, will accommodate about 250 families, and a population of something like 1,500. The buildings will have a frontage to Church-road, upwards of 100 ft. in length, and about 120 ft. in depth. A large number of shops and other business establishments have already been erected along the widened thoroughfare. Several other buildings of a similar character are now in course of erection, and when these are completed nearly the whole of the vacant land which the Metropolitan Board of Works have had to dispose of in this thoroughfare will be covered.

Quick Work.—In another paragraph we make mention of the rapidity with which certain mosaic work was executed. Here is an item showing expedition in another department of work:—Messrs. North & Son, of London-road, Southwark, some time ago obtained, in close competition, a large order from the Guardians of Kensington, for the recovering of five large roofs at the Infirmary, with best galvanised corrugated iron, and were allowed three weeks to complete the same, under heavy penalties. The work was done in two weeks, by the aid of improved machinery, without in any way disturbing the patients.

Paddington.—The stained-glass window in the new chancel at St. Saviour's, Paddington, is now finished and in its place on the right of the chancel. The subject is "The Ascension," and the window, which is the gift of Mr. John Welford, of Home Farm, Harrow-road, in memory of his late wife and their five children, is treated in the style of the fifteenth century. The window is by Mr. S. T. Matthews, of Queen's-road, Bayswater. The figure windows on the opposite side of the chancel have been altered and re-arranged by the same artist.

Social Science Association.—The Standing Committee on Health met on Tuesday, Sir Richard Temple, bart., in the chair, when the provisions of the Dwelling-Houses Inspection Bill were considered. A resolution was unanimously passed regretting that, as its clauses were of such an impracticable and unjust character, the committee were unable to give the measure their support.

TENDERS.

For repairs, alterations, &c., to St. James's Church, Piccadilly. Mr. J. T. Wimperis, architect:—

Durant	£3,412	0	0 !
Patrick & Sons	2,462	0	0
Stanley Bird	2,132	0	0
Scrivener & Co.	2,079	0	0
Bywaters	1,989	0	0
Brass	1,743	0	0
Fish, Prestige, & Co.	1,592	0	0
Lea	1,379	0	0 !

For the erection of artisans' dwellings, Minories, for the Metropolitan Railway Company. Mr. Walter Graves, architect. Quantities by Mr. Pollard:—

J. Mowlem & Co.	£49,990	0	0
Ward & Lamble	49,519	0	0
G. Shaw	49,264	0	0
W. H. Hobbs	48,900	0	0
J. Morter	48,600	0	0
J. Clemence	48,371	0	0
Perry & Co.	47,885	0	0
Colls & Son	47,400	0	0
W. Brass	46,971	0	0
Wall Bros.	44,739	0	0
J. T. Chappell	42,844	0	0

For works in connexion with erecting new girls' school at Upper Stratton, near Swindon, Wilts, for the Stratton St. Margaret School Board. Mr. William Drew, architect, Swindon. Quantities by the architect:—

Phillips, Swindon	£1,430	0	0
W. Jones, Gloucester	1,260	0	0
Wiltshire, Swindon	1,219	10	0
Looker, Stratton (accepted)	1,210	10	0

For alterations and additions to Rhine House, Lower Edmonton, for Mr. C. B. Harrison. Mr. H. F. Brown, architect:—

Fairhead	£892	10	0
Sargeant	850	0	0
Coldwells	760	0	0
Kent	695	10	0
Sharman	679	0	0
Reed (accepted)	591	0	0

[Architect's estimate, 580*l.*]

For the proposed restoration of the Church of St. Margaret, at Tintinhall, Yeovil, Somerset. Mr. Alex. Nelson Hansell, architect:—

Nave (for the Rev. T. B. Hyson and Restoration Committee):—

F. Cox, Yeovil	£1,049	0	0
C. Trask, Norton-sub-Hamdon	1,046	0	0
F. Fane, Stoke-under-Ham	980	0	0

Chancel (for the Right Hon. the Lord Arbuthnot):—

F. Cox	£538	0	0
F. Fane	445	0	0

For new lecture-hall, Brondesbury, for the Baptist Church. Mr. John E. Sears, architect. Quantities by Mr. Fleetwood:—

Chessum	£1,850	0	0
Ashby Bros.	1,843	0	0
Roberts	1,747	0	0
Staines & Son	1,738	0	0
Marsland	1,692	0	0
Nightingale	1,692	0	0
Tarrant & Son	1,689	0	0
Scrivener	1,647	0	0
Higgs	1,625	0	0

Accepted for 2,500 tons of broken granite, for the Sharnbrook Highway Board. Mr. Eaton, surveyor:—
The Enderby and Stoney Stanton Granite Company, at prices and stations as follow:—

Kimbolton-street,	at 8s. 9d.	per ton.
Raunds-street,	,, 8s. 6d.	,,
Irchester-street,	,, 8s. 3d.	,,
Sharnbrook-street	,, 8s. 6d.	,,
Oakley-street	,, 8s. 9d.	,,

For making new road and pipe sewer at Hornsey, for the Imperial Property Building Society:—

Bell, Wood Green	£1,417	0	0
Dunmore, Hornsey	1,314	0	0
Walker, Islington	1,195	0	0
Pizzey, Hornsey	1,191	0	0
Wilson, Walthamstow	1,150	0	0
Adams, Hackney (accepted)	1,089	0	0

For making new road at Alsdern Green, Willesden:—

Wright	£537	0	0
Beadle Bros.	485	0	0
Pizzey	480	0	0
Bath & Blackman (accepted)	419	0	0

For making new road and surface-water drain for the Chiswick School Board:—

Bottoms Bros.	£911	0	0
Clayton	911	0	0
Neave	770	0	0
Priestley	760	0	0
Hare	671	17	10
Pizzey	669	0	0
Nowell & Robson	647	0	0
Ball (accepted)	588	0	0

For new roads and pipe-sewers on the Russell Estate, at Charlton:—

Simmons	£1,180	0	0
Bloomfield	1,029	0	0
Adams	989	0	0
Bell	980	0	0
Nichols	873	0	0
Pizzey (accepted)	835	0	0

For pulling down and rebuilding the George public-house, Waterloo-road, for Messrs. Watney & Co. Mr. C. W. Bovis, architect:—

Clark & Bracey	£4,970	0	0
Hall, Beddall, & Co.	4,774	0	0
Fish, Prestige, & Co.	4,763	0	0*
Patman & Fotheringham	4,763	0	0*

* Drawn for in favour of Patman & Fotheringham.

For alterations and additions to St. Petrox chapel-o ease, Dartmouth. Mr. George H. Birch, architec 68, Lincoln's Inn-fields:—

Dart, Crediton	£3,721	0	0
Dove Bros., London	3,475	0	0
Blowey, Plymouth	3,420	0	0
Pillar & Sons, Dartmouth*	3,165	17	6

* Accepted, with deductions.

Accepted for new hospital for infectious diseases at Ashford, for the Staines Joint Hospital Board. Mr. Hampden W. Pratt, architect, Furnival's Inn:—

John Bottrill, Reading	£3,499	0	0

[Full list of tenders published in *Builder* for March 22.]

For hall, lavatories, refreshment departments, offices, and shops at Herne Bay, for the Herne Bay Pavilion, Pier, and Promenade Company, Limited. Mr. C. N. McIntyre North, architect, 15, Borough High-street. Quantities supplied:—

Richardson Bros., London	£2,365	0	0
W. Downs, London	2,319	0	0
Welby, Herne Bay	2,300	0	0
J. Marsland, London	2,285	0	0
Ingleton, Herne Bay	2,199	0	0
C. Foad, Whitstable	2,187	0	0
Cornelius, Whitstable	2,175	0	0
Shrubsole, Faversham	2,139	0	0
Stiff, Dover	2,112	0	0
Adams, Herne Bay	2,110	0	0
Josolyne, London	2,080	0	0
Amos & Foad, Whitstable	1,920	0	0

For a pair of semi-detached villas, Elmfield-road, Bromley, Kent, for Mr. J. Howard. Messrs. Beesley & Williams, architects, Buckingham-street, Adelphi:—

Payne	£1,867	0	0
Crossley	1,835	0	0
Pearse	1,755	0	0
Arnaud	1,720	0	0
Balding (accepted)	1,667	0	0
Williams	1,588	0	0
Lay	1,552	0	0

For the erection of stabling at Cricklewood, for the London General Omnibus Company, under the superintendence of Mr. G. T. Lanham. Quantities by Mr. Bolton:—

Webb & Rosser	£1,398	0	0
Evan & Co.	1,253	0	0
Smith	1,229	0	0
Cheshire	1,228	8	11
J. R. Hunt	1,200	0	0
Allard	1,197	0	0
Hack	1,197	0	0
Priestley & Gurney	1,195	0	0
Parker	1,175	0	0
Higgs	1,150	0	0
Haynes	1,150	0	0
Jackson & Todd	1,127	0	0
Aldridge & Jenvey	1,125	0	0
Richens & Mount	1,112	0	0
Garrud	1,083	0	0
Scharien & Williams	1,054	0	0

For new shop-front and alterations at No. 24, Chapel-street, Edgware-road, for Mr. T. Covell. Mr. Frank J. Ruddle, 85, St. Martin's-lane, architect. Quantities supplied:—

F. Mark	£363	0	0
W. Langridge & Sons	325	0	0
W. E. Eyears*	293	0	0

* Accepted, subject to modifications.

For building Raleigh House, Bromley, Kent, for Mr. J. Curtis. Mr. F. Stocker, architect:—

T. W. Harryman, Lewisham (accepted)	£1,795	0	0

For Hendon Main Drainage Works. Mr. John Pollard, C.E., engineer:—

Ford & Everett, Clayton Works, Kennington-road (accepted)	£31,000	0	0

For alterations and repairs to Portland House and Portland Villa, Hornsey-lane, for Mr. S. W. Francis. Mr. Walter Graves, architect:—

Williams & Son	£419	0	0
J. Lewis	377	0	0
Mattock Bros.	325	0	0
W. Ebbage	288	0	0
Ward & Lemble	282	0	0
J. O. Richardson (accepted)	253	15	0

Accepted for restoration of premises, No. 25, Ivy-lane, after fire, for Mr. Jones. Mr. William Smith, architect:—

Larke & Son	£243	6	0

[No competition]

For alterations and additions to the Commercial Tavern, Battersea Park-road, for Messrs. J. Carter Wood & Co, the Artillery Brewery, Victoria-street, Westminster. Mr. John Calder, architect. Quantities by Mr. Edward Crutchloe, Albert Chambers, Victoria-street, Westminster:—

Gregory	£1,675	0	0
Axford	1,625	0	0
Falkner	1,595	0	0
Boyce	1,520	0	0
King & Sons	1,490	0	0
Stiling	1,349	15	0
Stephens (accepted)	1,195	0	0

For the erection of cement kilns for the Rainham Portland Cement Company, Limited, Rainham, Essex. Mr. Rymer Jones, Engineer:—

H. L. Holloway, New Cross Gate	£1,587	0	0
Bartlett Bros., Witney, Oxon	1,550	0	0
Perry & Co., Bow	1,490	0	0
B. Cooke & Co., Battersea	1,460	0	0
G. Gates, Rochester	1,370	0	0

For building house and stables for Mr. H. Allen, in Chequers Close, Basingstoke. Messrs. H. E. Raynbird & Sons, Basingstoke, architects. Quantities by the architects:—

J. Grace, Stockbridge	£2,233	8	11
E. J. Batten, Everton	2,058	0	0
H. J. Goodall, Basingstoke	1,978	15	0
W. Musselwhite, Basingstoke	1,919	0	0
Kent & Lunn, Basingstoke	1,915	15	6
J. A. Sims, Basingstoke (accepted)	1,900	0	0

For additions to Upper Basildon Schools, for Mr. Charles Morrison. Messrs. Gordon & Lowther, architects, Basinghall-street, E.C.:—

Steel Bros.	£586	0	0
Higgs, Reading	579	0	0
Richardson, London	578	0	0
Potter, London	550	0	0
Bottrill, Reading (accepted)	510	0	0

Shops, Stables, &c., Camberwell.—Messrs. James Smith & Sons, builders, Norwood Junction, write to say that their tender was omitted from the list of tenders (published on p. 564 of last week's *Builder*) for four shops, stables, &c., for the London and South-Western Bank, Church-street, Camberwell. The amount of their tender was 11,927*l.*

Special Notice.—Lists of tenders frequently reach us too late for insertion. They should be delivered at our office, 46, Catherine-street, Strand, W.C., not later than four p.m. on Thursdays.

TO CORRESPONDENTS.

D. A. (the publication of which you send notice is out of the proper scope of our announcements).—F. J. B.—R. S.—H. T.—A. Y. B. (we fear the publication of your letter would hardly benefit you; the change which you note is part of the way the world goes, and not a peculiar affliction of your trade).—T. C. H.—W. M. M. (lay joists over concrete floor, with cross-bearers laid on the concrete to keep the joists clear of it; it will have the same "swing" as any other floor then, and can be either boarded in usual manner, or finished with parquetry on rough boarding. Parquetry runs from about 2s. to 6s. per foot super., according to elaboration of design and quality of wood).—W. H. S.—E. E.—Damp Stone Walls (we do not profess to give addresses,—see below,—but the Silicate Zopissa Company patent a liquid for application to exterior of stone walls, and other applications are from time to time advertised in our columns. As to inside, difficult to say what will keep damp out of the rooms if it is in the wall. In almost all such cases advice can only be satisfactorily given after personal inspection of the special circumstances, and it is better to consult a competent practical man in the neighbourhood).—J. H. S. (should send amounts).—T. W. ("footings on one side only" merely appear so because section is not carried past the boundary in the party-wall, as reference to the plan would make evident).—D. B. (amounts should be sent).

Correspondents should address the Editor, and *not* the Publisher, except in cases of business.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news-items) which have been duplicated for other journals, are NOT DESIRED.

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